

Manufacturers Record

Industry Construction



\$6.50 per Year
Single Copy, 20 Cents

Baltimore, Md.
FEBRUARY 5, 1931

Business Quickening

Signs point to better business. It is to be believed that the corner probably has been turned and progress, very slow at first it is true, is being made. From all over the country reports come of the reemployment of workers who have been laid off. Merchants are buying slightly larger stocks; there is more inquiry for goods. Financial and commercial reviews say the evidences of activity are more than seasonal.

Business will hesitate for a while, naturally. The depression has been too severe, its effects too far reaching for there to be other than hesitation in the upward climb. But very probably the worst is known and we can definitely lay plans for better times.

It is to be assumed that business generally recognizes, by this time if it has not before, the futility of some of the poorly conceived and practically unsound methods proposed and tried as a cure for depression. Ballyhoo won't stop a landslide, nor will raids on the public treasury. The timidity of buyers increases when confronted by so many disquieting present day proposals.

The wearing out of things owned by 122,000,000 people develops a new demand. The \$80,000,000,000, which is the annual income of this country, is constantly to be invested. And science and invention are creating new products and increasing wealth. By better manufacturing methods, greater application to the study of markets, better goods and increasingly greater value, we will increase the pace of business recovery.

Government ownership of utilities or a dole for the unemployed would be more fatal in their consequences than the business depression out of which we are passing.

New York Steam Corporation

Steam Service for Heat & Power
280 Madison Avenue at 40th Street
Telephone Caledonia 7200
New York

January 2, 1931

David C. Johnson,
President

Mr. Joseph V. Santry,
President,
Combustion Engineering Corporation,
200 Madison Avenue,
New York City

My dear Mr. Santry:

The management of the New York Steam Corporation is entirely satisfied with the manner in which your organization has performed under the contract for the installation of the fifth of the steam generators which you have furnished for the Kips Bay Station.

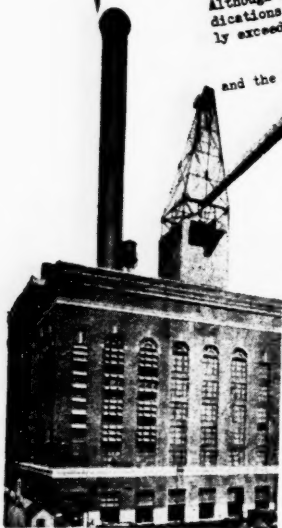
With limited facilities for storing material at the station, completion in the time available required careful scheduling so that the erection of materials might proceed uninterrupted upon their arrival. As the work progressed, it was apparent that your engineering, manufacturing and construction departments were in complete coordination, with the result that the unit was ready to generate steam on November 15, the date specified in the contract.

On December 4, the unit evaporated an average of 750,000 pounds of steam over a twenty-four hour period. Our organization regards this as very satisfactory performance. Although final acceptance tests have not yet been made, indications are that the contract guarantees will be materially exceeded.

We appreciate the cooperation of your organization and the efficient manner in which this work has been done.

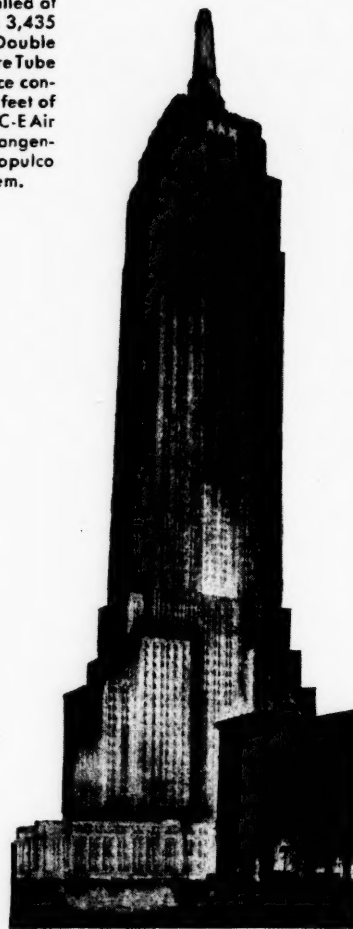
Very truly yours,

David C. Johnson
President



New York Steam Corporation
Kips Bay Station

The fifth C-E unit installed at Kips Bay consists of a 3,435 horse-power Ladd Double Type Boiler, a C-E Bare Tube Water Cooled Furnace containing 8,250 square feet of heating surface and a C-E Air Preheater. The unit is tangentially fired by the Lopulco Pulverized Fuel System.



THE EMPIRE STATE BUILDING...the world's tallest structure...is indicative of the trend toward central heating of large buildings. All the steam required by this greatest of skyscrapers is supplied by the Kips Bay Station.

Steam Heating

The Kips Bay Station of the New York Steam Corporation, bordering on the East River at 35th Street, was built in 1926 to take care, in part, of the heating load in the Grand Central Zone and adjacent territory.

This station, one of the first large Central Heating Plants to use pulverized fuel, is equipped throughout with Combustion Engineering Corporation's steam generating equipment.

The original installation consisted of three steam generating units, installed in 1926. A fourth unit was added in 1927 to take care of the growing demands.

To provide for this winter's increased load, including

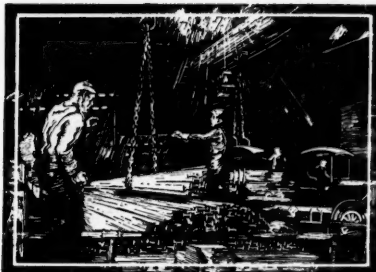
the heating of the new Empire State Building, the New York Steam Corporation, on March 13, 1930, placed a contract with the Combustion Engineering Corporation for a fifth unit similar to the four units already installed but to deliver 700,000 pounds of steam per hour, specifying that the unit should be installed by November 15, 1930.

On the scheduled date, November 15, 1930—eight months and two days after the contract was signed—the unit was generating steam. On December 4, 1930, it generated an average of 750,000 pounds of steam per hour over a 24 hour period.

COMBUSTION ENGINEERING CORPORATION

TWO HUNDRED MADISON AVENUE NEW YORK

STOKERS · BOILERS · PULVERIZED FUEL EQUIPMENT · AIR PREHEATERS · WATER COOLED FURNACES



IMMEDIATE STEEL

More than 10,000 Sizes and Kinds of Steel Products

Here are huge stores of steel that offer unusual possibilities for concentrating purchases and thus saving time, trouble and money. The diversity of stocks, the wide range of sizes carried, with prompt service assured, provides an economical

source for those following the generally accepted current buying method. You will find many advantages in grouping orders for immediate shipment from your nearest Ryerson Steel-Service Plant.

A few of the many steel products
always in stock for immediate shipment

THE HEAVY STEEL LINES

Immediate shipment of all standard sizes, cut to length.

Structural "I" Beams
Structural "H" Beams
Angles
Channels
Tees

Zees
Plates
H Columns
Girder Beams

SPECIAL STEELS

Alloy Steels conforming to various S. A. E. Specifications.

Ryolite "4 Point" Chisel Steel.

Ryolite Tool Steel in different analyses meeting the various tool steel requirements.

Ascoloy, a corrosion resisting chrome iron.

Allegheny Metal, a SUPER corrosion resisting metal.

MACHINERY

Including a complete line of machine tools and metal-working equipment of all kinds.

Lathes
Shapers
Milling Machines
Drills
Friction Saws
Grinders
Bending Rolls
Horizontal Drills

Punches
Shears
Welding
Equipment
Flue and Spring
Shop Equipt.
Motors
Power Hammers

THE COMPLETE BAR STOCKS

Including all standard sizes.

Mild Steel
Cold Finished
Refined Iron
Reinforcing
Forging
Screw Stock

Shafting
Free Cutting
Stem Rounds
Ascoloy
Alloy Steel
Tool Steel

SPECIAL SHEETS

"C" Pickled
Single Pickled
One Pass Cold
Rolled
Galvanized
Blue Annealed
Patent Leveled
Silver Finished
Tool Steel
Extra Deep
Stamping

Uniform Blue
Vitreous
Enameling
Wellsville
Polished
Partition
Bill Poster
Armco Iron
Lead Coated
Allegheny
Electrical

SMALL TOOLS

A complete line of the smaller metal-working tools for every industry.

Electric Drills
Clamps
Chucks
Benders
Saws

Hoists
Sheet Metal Tools
Punches
Forges, etc.
Shears

And a hundred and one other tools.

BUILDING SPECIALTIES

Reinforcing Steel and
Accessories
Wire Mesh
Expanded Metal
Steel Joist
Wire
Plastering
Channels
Metal Lath

Corrugated
Sheets
Base Scream
Corner Bead
Picture Mold
Bar Chairs
Spacers
Bar Supports
Spirals

GLYCO BABBITT

The four grades of Glyco Babbitt metal meet all the varying needs of industry.

"Turbo" Glyco for the most extreme heavy duty service.

"Marine" Glyco for electric motors and similar applications where service is severe.

"Standard" Glyco for an infinite variety of ordinary bearing positions.

"Transmission" Glyco is recommended when stresses are unimportant.

OTHER SPECIAL LINES

Strip Steel
Bolts and Nuts
Boiler Tubes
and Fittings
Welding Rods
Floor Plates

Steel Grating
Stair Treads
Tag Protectors
Turnbuckles
Wire
Rivets

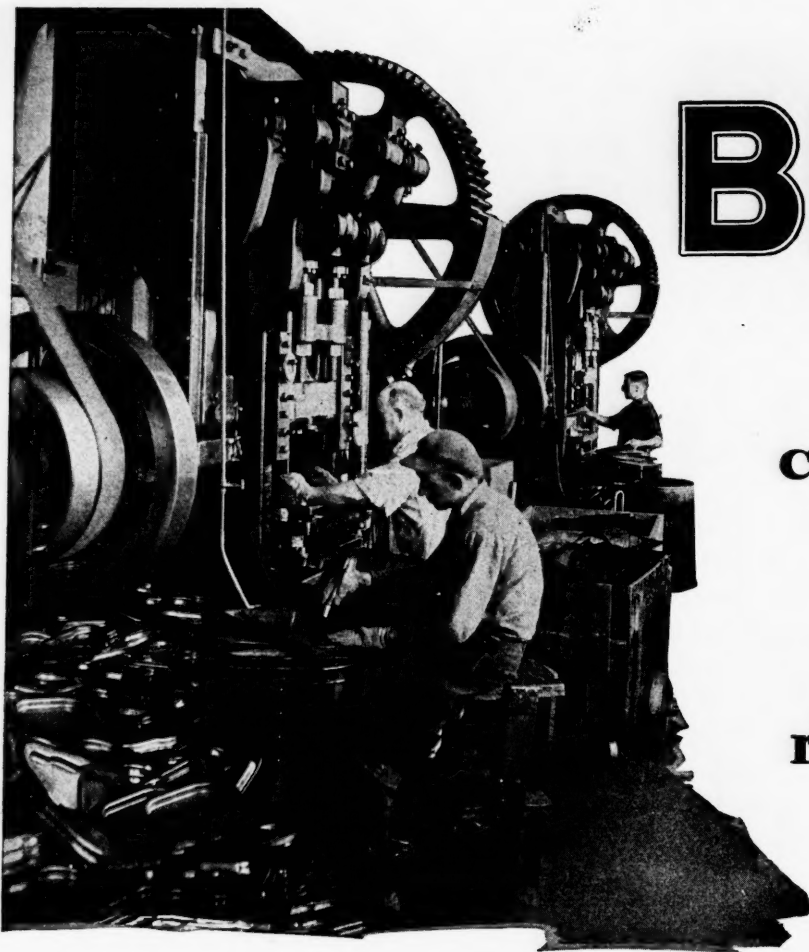
Write for the Ryerson Journal and Stock List—"Key to Immediate Steel"

JOSEPH T. RYERSON & SON, INC.

Plants: Chicago, Milwaukee, St. Louis, Cincinnati, Detroit, Cleveland, Buffalo, Boston, Philadelphia, Jersey City

Representation in: Minneapolis, Rockford, Kansas City, Tulsa, Houston, Newark, New York, Denver, Los Angeles, San Francisco

RYERSON STEEL-SERVICE



BLISS

**The
complete line**

**A Press
for every
requirement**

YOU can safely depend on the recommendations of Bliss to provide the most efficient type of machine for your particular sheet metal operations.

The wide range of equipment built by Bliss covers every conceivable requirement in sheet metal punching, piercing, blanking, embossing, stamping or forming. Bliss recommendations are therefore not restricted by an incomplete line of equipment.

No matter what material, quantity, size or shape of sheet metal parts you may require, there is a suitable Bliss type that has fully proven its efficiency and dependability in hundreds of installations.

E. W. BLISS CO. MAIN OFFICE AND WORKS BROOKLYN, N. Y., U. S. A.

Sales Offices

DETROIT Gen. Motors Bldg. CLEVELAND Guarantee Title Bldg. CHICAGO 1900 N. Kilbourn Ave. CINCINNATI Union Trust Bldg. ROCHESTER Times Union Bldg. NEW HAVEN 2d Nat. Bk. Bldg. BOSTON Weld Bldg. PHILADELPHIA Nat. Bk. of N. Phila. Bldg.

American Factories: BROOKLYN, N. Y. HASTINGS, MICH. SALEM, OHIO

Foreign Sales Offices and Factories

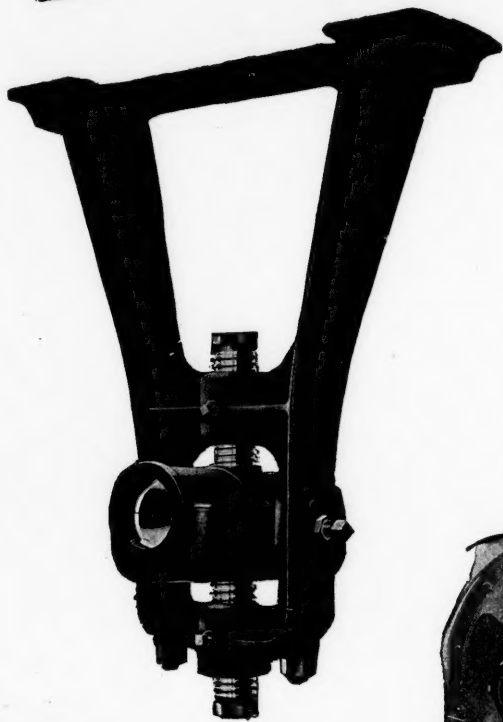
ENGLAND, Pocock St., Blackfriars Rd., S. E., London
No. 565

ITALY, 345 Via Nizza, Turin

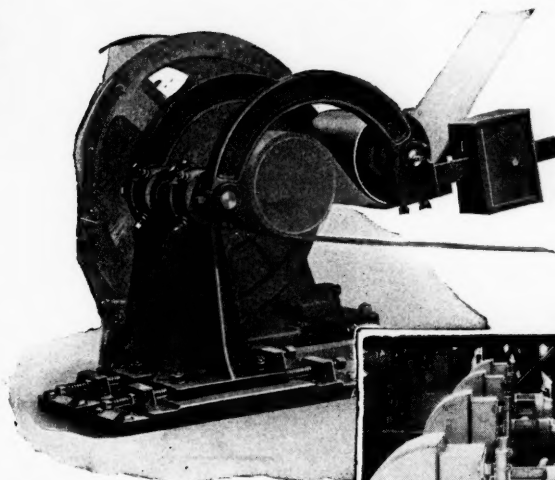
FRANCE, 54 Blvd. Victor-Hugo, St. Ouen Sur Seine, Paris

EVERYTHING

in Modern Drives and Transmission

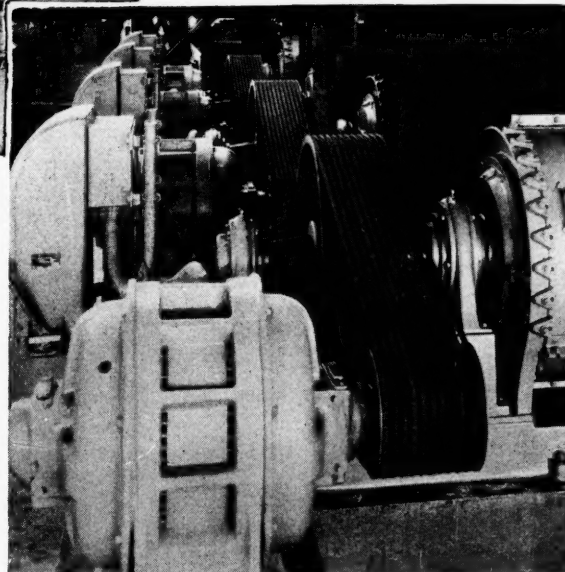


The "Universal Giant" Ring Oiling, Ball & Socket, Cast-Iron Hanger is permanent equipment that can be installed—and forgotten. "Universal Giants," fifty years old, are giving as good service today in many plants as the day they were new. You can't wear them out!



The U.G. Automatic Belt Contactor, Curved Double Arm Type 22. Two stands having adjustable bearings for cross shaft. Recommended for heavy belt drives 6" to 24" wide with slack at top.

Write us about your transmission problems—our engineering staff is at your service, without obligation. Catalogs, if you prefer.

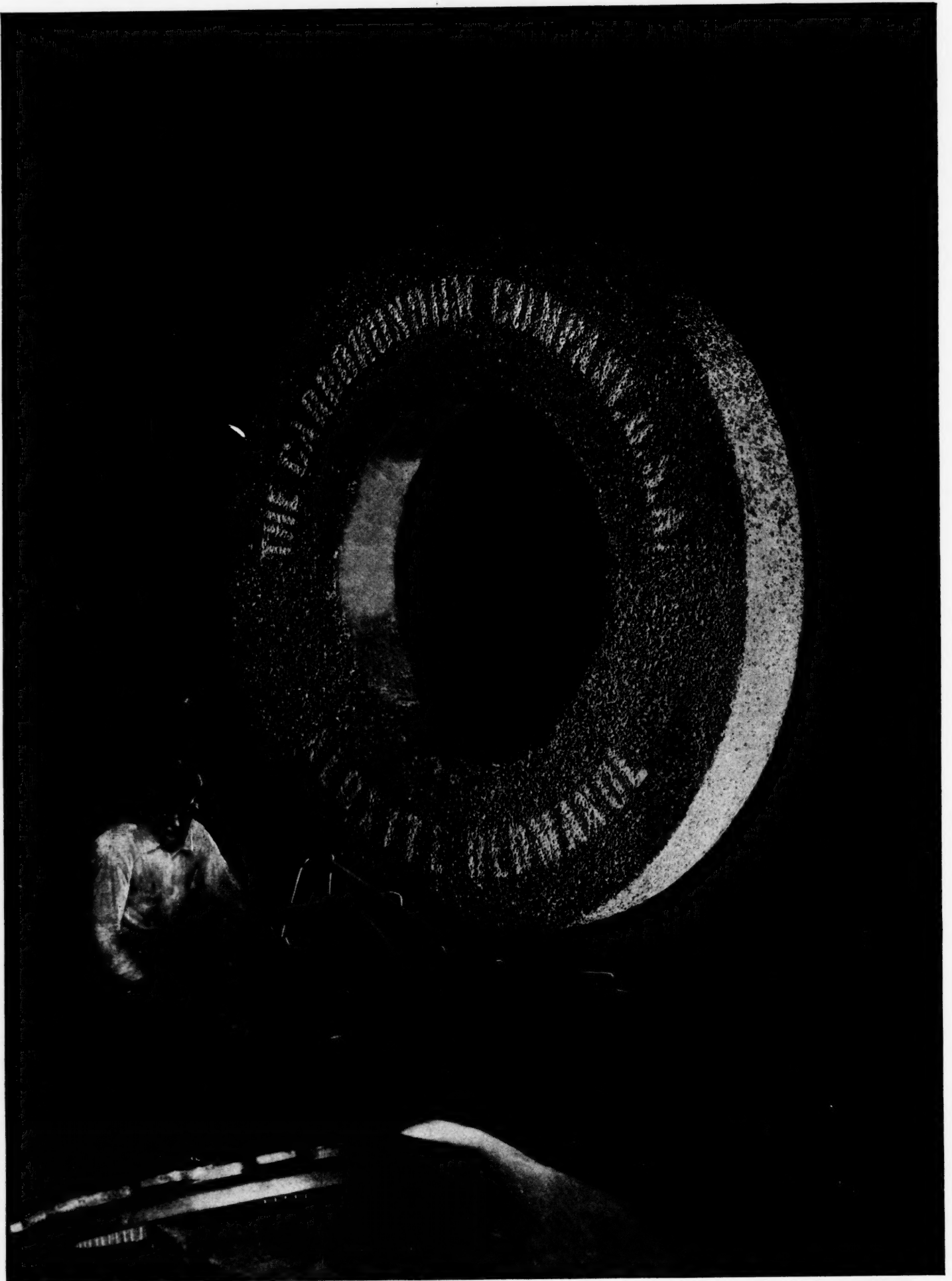


T. B. Wood's Sons Company is a licensed manufacturer of the Allis-Chalmers Texrope Drive, of which a large and complete stock of standard sheaves and belts is always carried. Texrope Drives are smooth, silent and economical; require no lubrication and no expert attention. May we tell you more about them?

Makers of:

Shafting, Hangers, Collars, Pulleys, Friction Clutches, Ball Bearings, Flexible Couplings, Rope Sheaves, Pillow Blocks, The U. G. Automatic Belt Contactor and Texrope Drives. Also Brass, Aluminum and Gray Iron Castings.

T. B. WOOD'S SONS CO., CHAMBERSBURG, PA.
CAMBRIDGE, MASS. GREENVILLE, S. C.



GREATER PRODUCTION—
HIGHER SPEEDS—
LOWERED COSTS—

IN keeping with industrial progress this Aloxite Brand Redmanol Wheel was developed for foundry grinding—for snagging.

It has fulfilled its mission as evidenced by its records for greater production per man and machine—more metal removed per minute—higher speeds with safety.

Redmanol—the resinoid bond plus the unprecedented cutting ability of Aloxite Brand Aluminum Oxide gives a wheel that is open, porous, free cutting.

And it can be run at 9,000 s. f. m.—fifty per cent over the old speed limit of 6,000 s. f. m.

All of which means ultimate lower grinding costs—greater production.

THE CARBORUNDUM COMPANY • NIAGARA FALLS, N. Y.

Reg. U. S. Pat. Off.

CANADIAN CARBORUNDUM CO., LTD., NIAGARA FALLS, ONT.

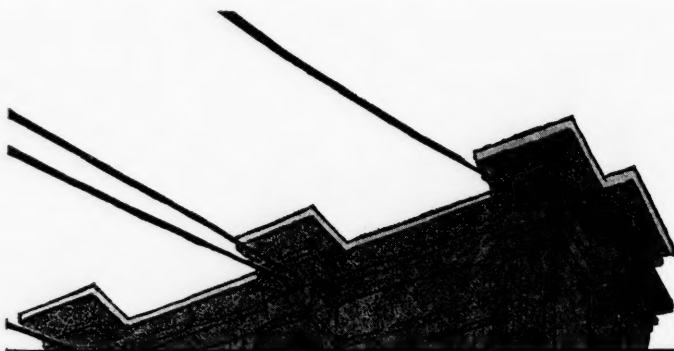
Sales Offices and Warehouses in

New York, Chicago, Boston, Philadelphia, Cleveland, Detroit, Cincinnati, Pittsburgh, Milwaukee, Grand Rapids, Toronto, Ont.

Deutsche Carborundum Werke, Reisholz bei Dusseldorf, Germany

The Carborundum Co., Ltd., Manchester, England

(CARBORUNDUM AND ALOXITE ARE REGISTERED TRADE MARKS OF THE CARBORUNDUM COMPANY)



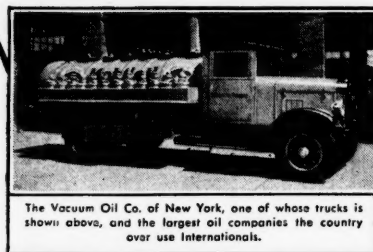
In the Biggest City in the Country

INTERNATIONALS

are Doing the Biggest Kind of Jobs

THE conspicuous success of International Trucks in New York has a deep significance. New York knows that these trucks are built right... and that they serve right, as have other products of the Harvester Company for a full one hundred years. America as a whole endorses New York's good judgment, for in ten years International Truck production has grown seven times as fast as the total truck production of the industry. New York has Internationals at work digging subways, building bridges, fighting fires, as well as serving every conceivable type of business enterprise. New York chooses Internationals! Your eyes can give you indication of that preference everywhere; registration figures give you proof; a test on your own job will reveal the reason!

INTERNATIONAL HARVESTER COMPANY
OF AMERICA
606 S. Michigan Ave. (INCORPORATED) Chicago, Illinois



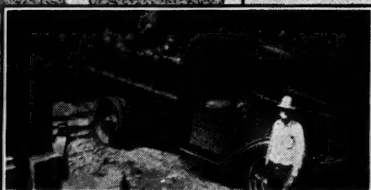
The Vacuum Oil Co. of New York, one of whose trucks is shown above, and the largest oil companies the country over use Internationals.



39 Internationals deliver the delicious baked goods of the Cox Baking Company. 26 of this number are speedy, good-looking Special Delivery Trucks.



The business of the Aero Mayflower Transit Company is to haul heavy loads for long distances. Internationals do the job for them, and for many, many other transit companies.



George W. Johnson, subway contractor, uses International Trucks. Internationals have worked month in and month out almost from the very beginning on New York's subway program.



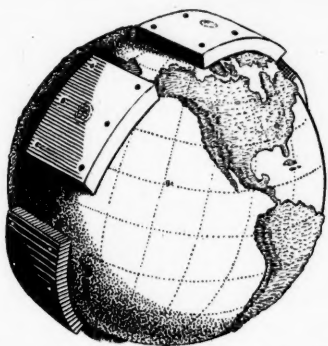
New York homes are kept warm in winter by coal and coke delivered in International Trucks. Koppers uses Internationals as do countless other firms in that business.



The prominent Washington Square Laundry maintains a fleet of 22 Internationals, and is but one of hundreds of laundries using International Trucks profitably.

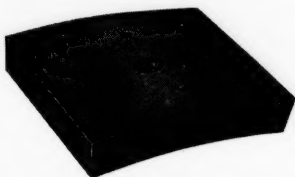
INTERNATIONAL TRUCKS

Speed and Heavy-Duty Models—sold and serviced by 180 Company-owned branches

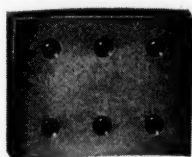


"Palmer Brake Blocks Could Stop the Earth"

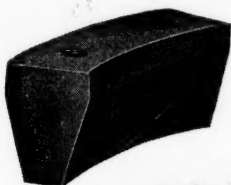
Braking is sure and *speedy* with Palmer Molded Brake Blocks



Palmer Molded Brake Blocks are accurately formed by steel molds under tremendous hydraulic pressure.



All holes are very accurately molded, not drilled. This prevents cutting the grain and weakening the block.



Palmer Molded Brake Blocks are made in any size or shape for any make or model of equipment. They last twice as long as ordinary wood or composition blocks.



Palmer Hydraulic Brake Lining has been proved by the hardest kind of service to be superior to all others in long life, braking efficiency and economy.

POSITIVE, safe and long-lived, Palmer Blocks give the sureness and speed in braking that operators want for fast and steady work. These blocks are made of high-grade asbestos by the exclusive PALMER method and are formed with a special binding compound under tremendous hydraulic pressure. They provide maximum friction in use because they contain the maximum amount of the best braking material known. They are compact, uniform in structure, non-charring, and impervious to oil, water and grit.

The next time you have to put brake blocks on steam shovels, dredges, hoists or cranes, be sure to specify Palmer. Remember that it costs at least half as much for the labor required to renew brake blocks as it costs for the blocks themselves. Palmer Blocks wear more than twice as long as ordinary composition blocks and pay for themselves in renewal labor saving alone.

Write for detailed information or send specification of blocks desired, for prices.

Some Users of Palmer Brake Products

International Harvester Co.
Bucyrus Co.
Link-Belt Co.
Fairbanks Morse Co.
Monighan Machine Co.
Interstate Iron & Steel Co.
Thew Shovel Co.
Lehigh Coal Co.
Ohio Locomotive Crane Co.

W. A. Jones Foundry & Machinery Co.
Chicago, Burlington & Quincy Ry.
Chicago, Milwaukee & St. Paul Ry.
Chicago & Northwestern Railroad
Austin Machinery Corp.
Western Electric Co.
U. S. Steel Corp.

Palmer Asbestos & Rubber Corporation

General Office—Chicago

Factories

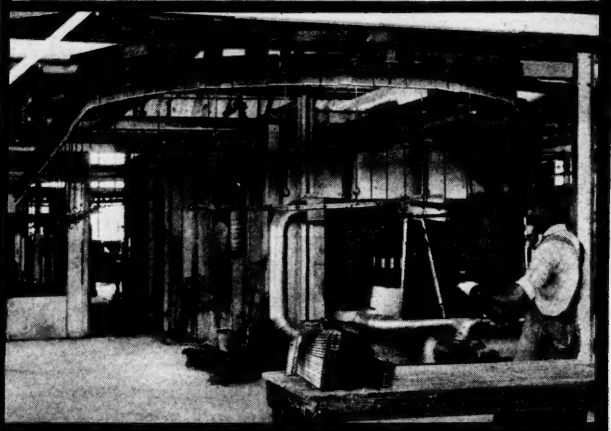
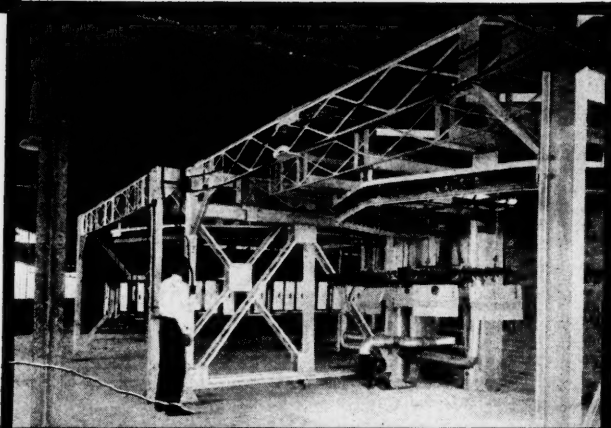
CHICAGO, ILL.

LOUISVILLE, KY.

THE LARGEST MANUFACTURERS USE PALMER BLOCKS & LINING

DOING BETTER VITREOUS ENAMELING WITH GAS

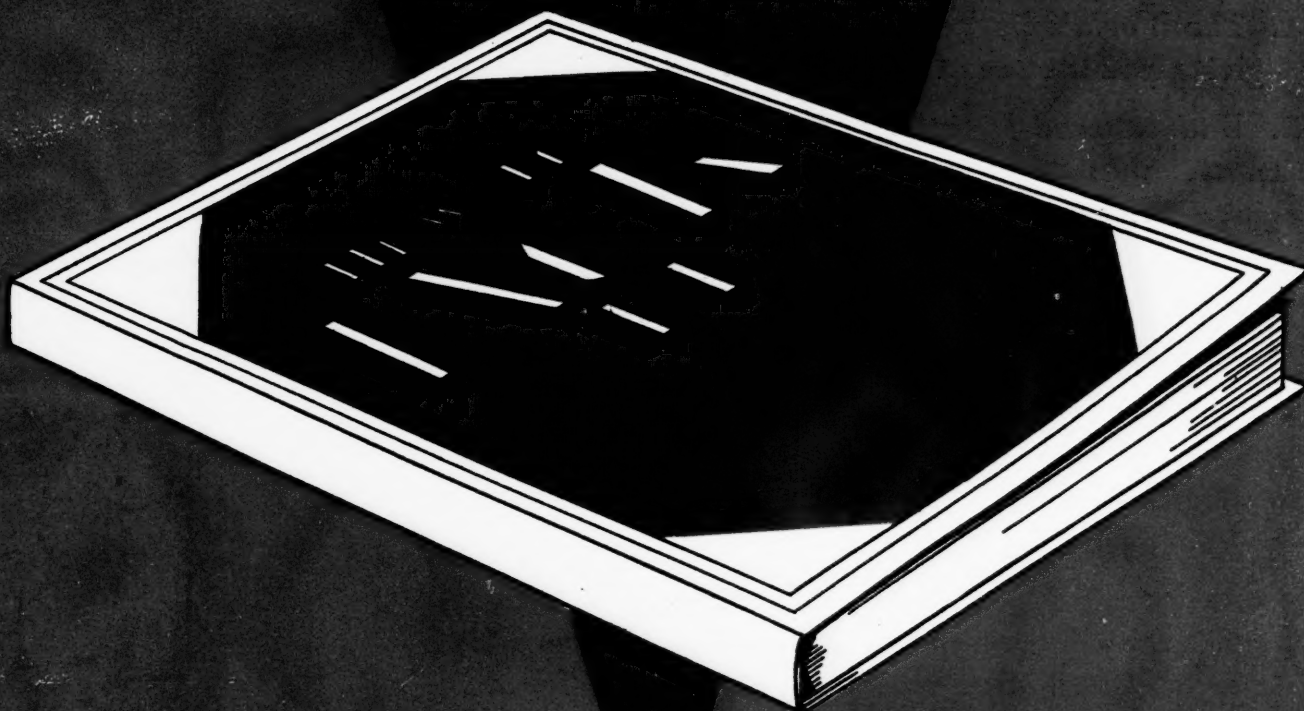
FURNACE "comeback" where gas is used is one of the things that has helped to make the gas-fired vitreous enameling furnace so popular. It is highly questionable whether the new continuous vitreous enameling furnace would ever have reached such widespread use without the adaptation of gas to this problem.



AMERICAN GAS ASSOCIATION
420 Lexington Avenue, New York

Send for your
copy of the free
illustrated book
"GAS HEAT".

**GET
THIS
BOOK**



IT POINTS OUT THE
4-FOLD BENEFITS
OF H & D SERVICE

SIZE · LOCATIONS · EXPERIENCE · ENGINEERING

THE BENEFITS OF H & D SERVICE ARE 4-FOLD

NO matter what your packaging needs you can take full advantage of the four-fold benefits of H & D Service:

1. *The World's Largest Packaging Organization*—giving you the use of ample facilities.
2. *Wide Spread Locations*—twenty-five mills and factories with thirty-one service offices offer packaging service as near as your needs.
3. *The Experience of Nearly Half a Century*—in meeting the packaging requirements of thousands of shippers in all lines of business.
4. *A Staff of 50 Trained Package Engineers*—who know how to analyze a packaging problem and to design a shipping box of maximum efficiency and economy.

"How to Pack It," a new H & D booklet on scientific packaging, will give you a more complete idea of Hinde & Dauch Service. Mail the coupon for a free copy.

THE HINDE & DAUCH PAPER COMPANY
336 DECATUR STREET SANDUSKY, OHIO

Western Address:
KANSAS CITY FIBRE BOX CO.
PACKERS STATION KANSAS CITY, KANSAS

Canadian Address:
KING STREET SUBWAY AND HANNA AVE. TORONTO



H & D Package Engineers will gladly study your packaging needs and place at your disposal the four-fold benefits of H & D Service. Their recommendations will not obligate you in the least.

HINDE & DAUCH

SHIPPING BOXES

THE HINDE & DAUCH PAPER COMPANY
336 Decatur Street, Sandusky, Ohio

Please send me a copy of "How to Pack It."

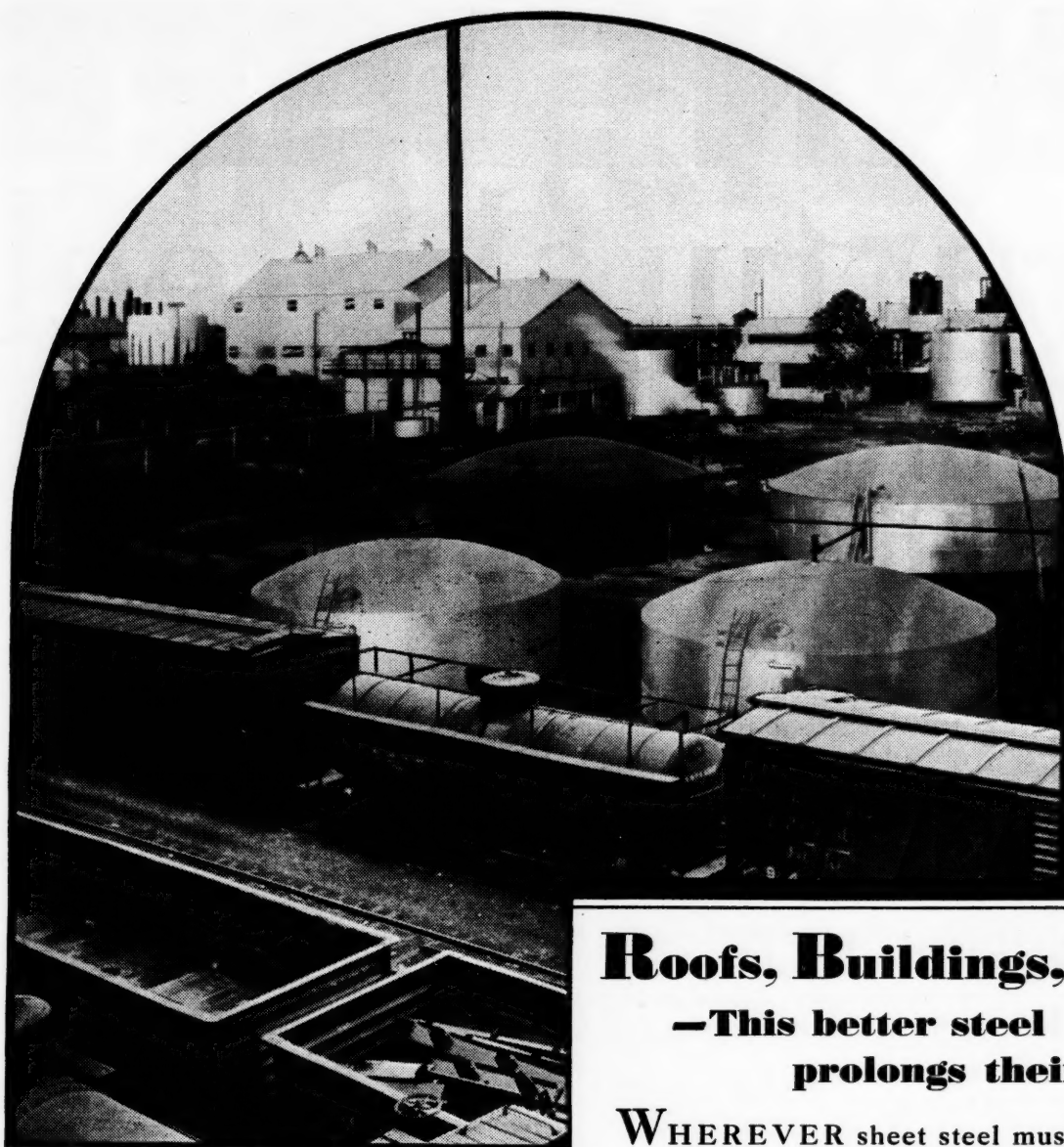
Signature _____ We Pack _____

Company Name _____

Address _____

City _____ State _____





Roofs, Buildings, Tanks —This better steel prolongs their life

WHEREVER sheet steel must resist rust and corrosion, Granite City Copper Bearing Steel can prolong life and reduce depreciation.

Experimental tests show that it lasts almost three times as long as ordinary steel (without copper content) under similar conditions. Records of service in every day use indicate an even longer life.

Whether your needs call for sheets or for plates for indoor or outdoor use, for fabrication

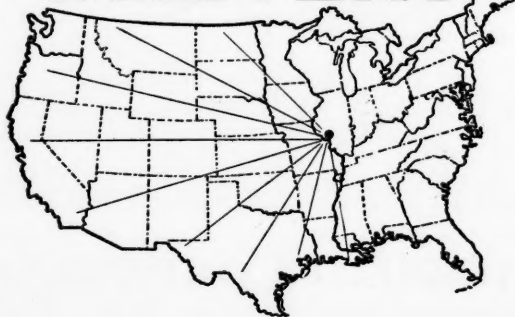
or for construction work—this better steel offers unusual savings. . . . And Granite City Copper Bearing sheets and plates are available in stock sizes and to specification. The mill location, only 20 minutes from St. Louis, expedites delivery to the Mississippi Valley, the West and the Southwest.

Kansas City
Los Angeles
Chicago, Dallas



San Francisco
Salt Lake City
St. Louis, St. Paul

**QUICK
DELIVERY**



Prompt Shipments
via 29 railroads
and the Mississippi
River.

GRANITE CITY STEEL CO. GRANITE CITY ILLINOIS
Galvanized, Blue Annealed and Black Sheets - Plates and Tin Plate

TENNESSEE Structural Steel



In Tennessee's tallest Building



IMPOSING in size, handsomely and symmetrically proportioned, and modern to the last detail, the Sterick Building, overlooking the majestic Mississippi, ranks first among Tennessee's tall buildings.

Naturally, this most recent addition to the skyline of Memphis is framed in Structural Steel and, appropriately enough, Tennessee Structural Steel was selected by the fabricators.

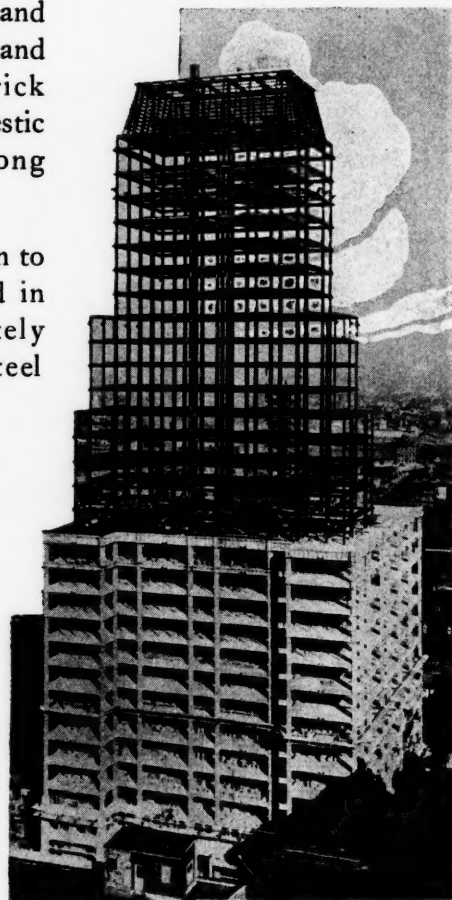
Owners, architects, engineers, fabricators, erectors—all are unanimous in proclaiming the advantages of Structural Steel as a building medium.

STERICK BUILDING Memphis, Tenn.

Architect—Wyatt C. Hedrick, Fort Worth

Fabricators—Virginia Bridge & Iron Co., Birmingham and Memphis

Contractors—Bellows-MacLay Construction Company, Dallas



TENNESSEE COAL, IRON & RAILROAD COMPANY

General Offices: Brown-Marx Building, Birmingham, Ala.

Subsidiary of United States Steel Corporation

AMERICAN BRIDGE COMPANY

AMERICAN SHEET AND TIN PLATE COMPANY

AMERICAN STEEL AND WIRE COMPANY

CARNegie STEEL COMPANY

Pacific Coast Distributors—Columbia Steel Company, Russ Building, San Francisco, Calif.

PRINCIPAL SUBSIDIARY

COLUMBIA STEEL COMPANY

CYCLONE FENCE COMPANY

FEDERAL SHIPBUILDING AND DRY DOCK COMPANY

MANUFACTURING COMPANIES

ILLINOIS STEEL COMPANY

MINNESOTA STEEL COMPANY

NATIONAL TUBE COMPANY

OIL WELL SUPPLY COMPANY

THE LORAIN STEEL COMPANY

TENNESSEE COAL, IRON & R. R. COMPANY

UNIVERSAL ATLAS CEMENT COMPANY

Export Distributors—United States Steel Products Company, 30 Church Street, New York, N. Y.

AMERICAN STEEL SHEETS

ONLY by making sure that the sheets you purchase are AMERICAN, do you insure for your product the quality that comes from sheet metals that are correctly made in every detail, by skilled and able craftsmen. Make no mistake, you can identify TRUE QUALITY in Steel Sheets by the well known AMERICAN brand.

This Company Manufactures High Grade
AMERICAN

**Black Sheets
Blue Annealed Sheets
Electrical Sheets
Automobile Sheets
Special Sheets
Stamping Sheets
Locomotive Jacket Sheets
Keystone Rust-resisting
Copper Steel Sheets
Apollo Galvanized Sheets
Galvannealed Sheets
Formed Roofing Products
Tin and Terne Plates, Etc.**

Our experienced engineers are ready to assist you in the selection of the proper products for your particular requirements. When maximum resistance to corrosion is important, specify for KEYSTONE quality—the original rust-resisting Copper Steel. Send for "Anti-Corrosive Metal" booklet.



American Sheet and Tin Plate Company

GENERAL OFFICES: Frick Building, PITTSBURGH, PA.

SUBSIDIARY OF UNITED STATES STEEL CORPORATION



AMERICAN BRIDGE COMPANY
AMERICAN SHEET AND TIN PLATE COMPANY
AMERICAN STEEL AND WIRE COMPANY
CARNEGIE STEEL COMPANY
Pacific Coast Distributors—Columbia Steel Company, Russ Building, San Francisco, Calif.

PRINCIPAL SUBSIDIARY MANUFACTURING COMPANIES:
COLUMBIA STEEL COMPANY
CYCLONE FENCE COMPANY
FEDERAL SHIPLOG & DRY DOCK CO.

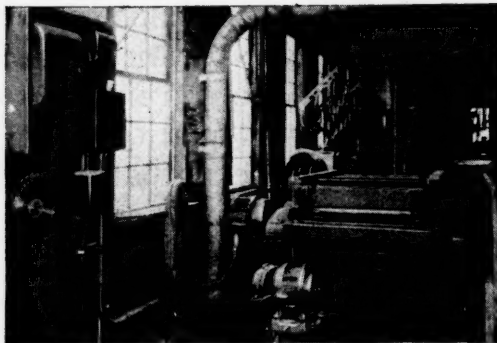
ILLINOIS STEEL COMPANY
MINNESOTA STEEL COMPANY
NATIONAL TUBE COMPANY

OIL WELL SUPPLY COMPANY
THE LORAIN STEEL COMPANY
TENNESSEE COAL, IRON & RAILROAD CO.
UNIVERSAL ATLAS CEMENT COMPANY
Export Distributors—United States Steel Products Company, 30 Church Street, New York, N. Y.

"Look before, or you'll
[The Sayings of

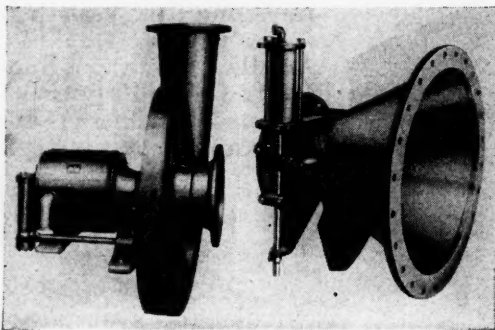
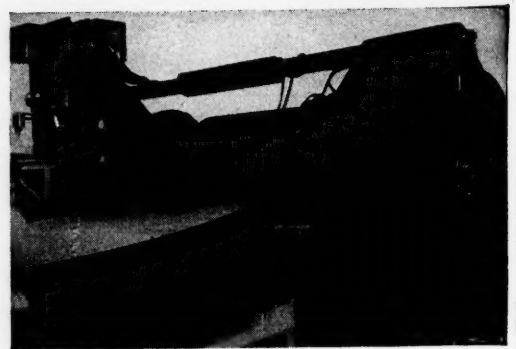


find yourself behind"
Poor Richard]



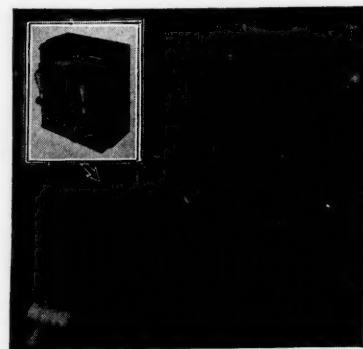
LEBANON Valley Furniture Co., Lebanon, Pa. changed over its entire plant from line-shaft drive to individual drive, following the recommendations of G-E sales engineers. The treasurer has written, in part: "Results prove we made no mistake in thus modernizing our plant.....it has given the old equipment an enlarged producing value comparable to that of new motor-driven machines. To you, our power problem might well have been just 'another small job.' The manner in which you have taken care of us has proven that the services of the General Electric Company, long recognized as invaluable to 'big industry', are just as efficiently adapted to the needs of the small or moderate-sized plant."

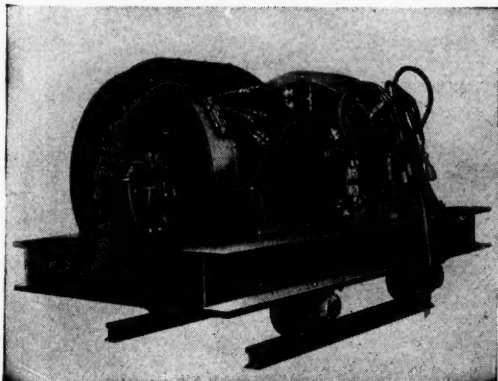
HERE'S something new in veneer-lathe drives—an adjustable-speed d-c. motor with a speed range (at constant horsepower) of 6 to 1 by field control. Also, a companion controller which automatically accelerates the motor to required lathe speed, stops it almost instantly by dynamic braking, and quickly decelerates the lathe speed to facilitate trimming out pitch pockets, etc. Any veneer manufacturer will appreciate what this drive means in cutting operating costs. It can be applied to your existing lathes.



YOU can't afford to use machinery to obsolescence these days. For instance, you could actually save money by scrapping a comparatively new water-gas blower in favor of this G-E motor-driven blower equipped with a hydraulically operated blast gate placed adjacent to the impeller inlet. A gas company recently reported a saving of \$4,000 in the first year of operation with this modern equipment.

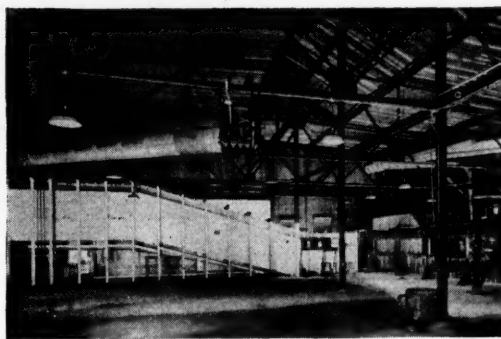
IF you're looking ahead, you're looking for every possible use of vacuum-tube equipment in your plant. There are lots of applications besides the more obvious ones of counting, sorting, color comparing, etc. Here's a G-E Thyratron, for instance, providing precise, continuous, stepless, motor-control for a wire-drawing and winding machine. Absolutely accurate control of tension between dies and reels, greater safety, and a more uniform grade of wire result.





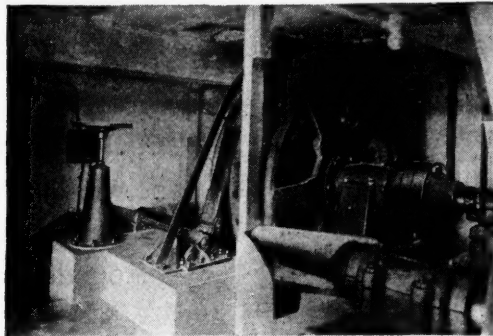
AND here's a completely automatic substation on wheels, designed for modern mechanized mining with its rapidly shifting load centers. Can be quickly hauled up to new working face on standard mine track. The opportunities for cutting operating costs are obvious. Its installed cost is approximately the same as that of conventional-type substations.

PEERLESS Enamel Products Co., Belleville, Ill., modernized by installing one of the new G-E continuous heat-sealed furnaces. After a year of operation, it reports 18 per cent reduction in enameling costs, virtual elimination of costly rejects, lower handling costs, improved working conditions, and increased sales due to the noticeable improvement in the appearance of the products.



WITH annoying frequency, a manufacturer was scrapping \$700 galvanizing pots because large holes, made by the zinc and chemicals, rendered them worthless. A G-E sales engineer recommended repairing them with a G-E arc welding set and G-E Type F welding electrode. The pots are now put back in service quickly with an average saving of \$650 per pot, or \$2,600 a year.

ON the recommendation of the nearby G-E office, the Weber Flour Mills Co., of Salina, Kansas, replaced the two induction motors that operated its mill with one G-E 450-hp. Super Synchronous motor. The increased efficiency of this motor, and the raising of the plant power-factor to unity, effected a monthly saving of \$434. The mill is also producing a superior brand of flour, because of the smooth starting and uniform-speed characteristics of the new motor.



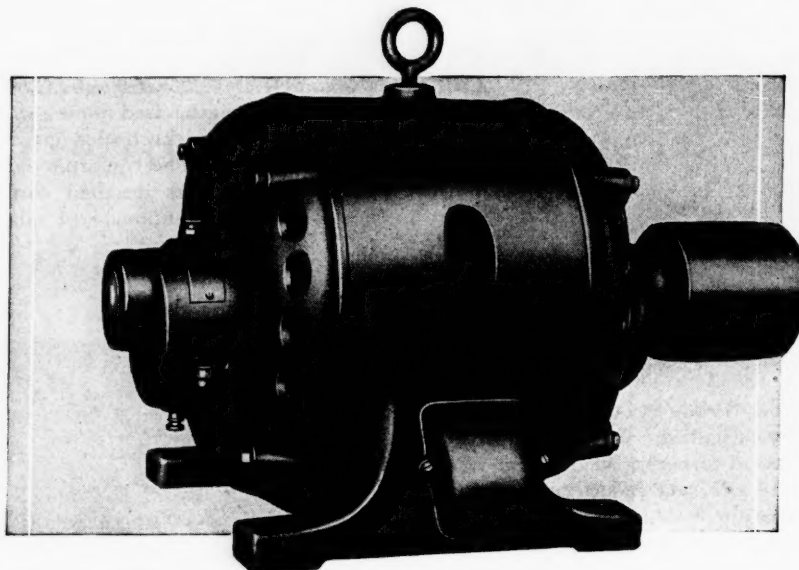
Modernization Reduces Costs—Increases Profit

There are any number of ways in which the G-E sales engineer can help you to modernize. Ask him about them when he calls; or write the nearest G-E office.

GENERAL  ELECTRIC

200-444

THEY KEEP A-RUNNING



10 Horse Power
Century Type SC
Squirrel Cage In-
duction 3 and 2
Phase Motor.

CONTINUITY OF SERVICE

Rigidity, due to the liberal use of material properly placed, and firm anchoring of a well insulated winding preserves the "Keep a-Running" ability of Century general purpose application polyphase motors under the shocks of reciprocating equipment and the stresses and pounding of gear and chain drives.

Air spaces of substantial area to permit free circulation of air and thorough treatment of the winding with insulation varnishes, add to their value in dusty or damp atmospheric surroundings.



Century 250 Horse Power 60
Cycle 3 Phase Squirrel Cage
Induction Motor equipped
with ball bearings.

CENTURY ELECTRIC COMPANY

1806 PINE ST. • ST. LOUIS, MO.

40 U. S. and Canadian Stock Points and More Than 75 Outside Thereof

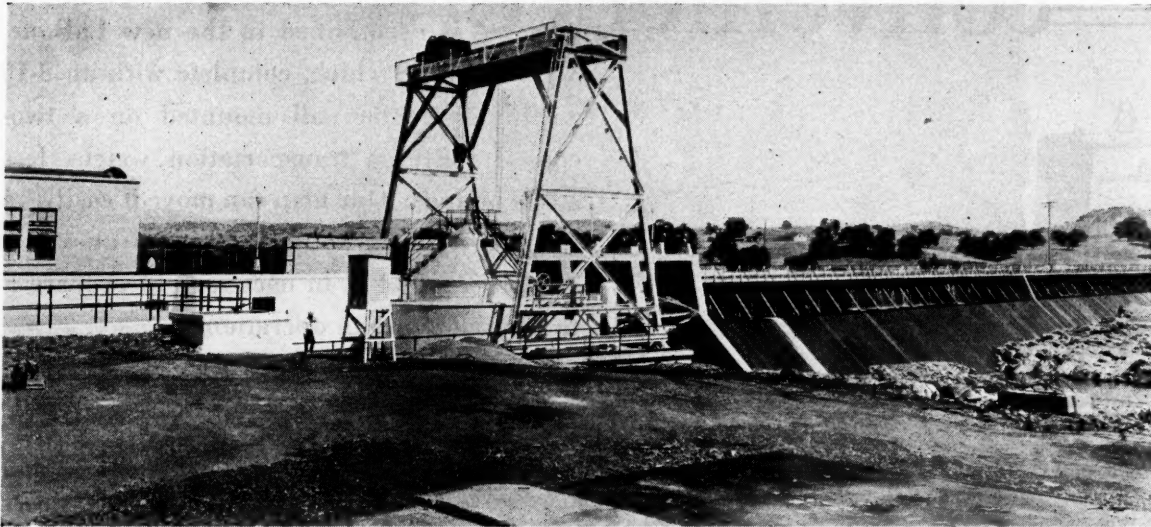
SINGLE PHASE,
THREE PHASE,
AND DIRECT
CURRENT MOTORS

Century
MOTORS

MOTOR GENERA-
TOR SETS, ROTARY
CONVERTORS, FANS
AND VENTILATORS

FOR MORE THAN 27 YEARS AT ST. LOUIS

SC-1-10



The first Kaplan Turbine West of the Rockies—*now in successful operation*

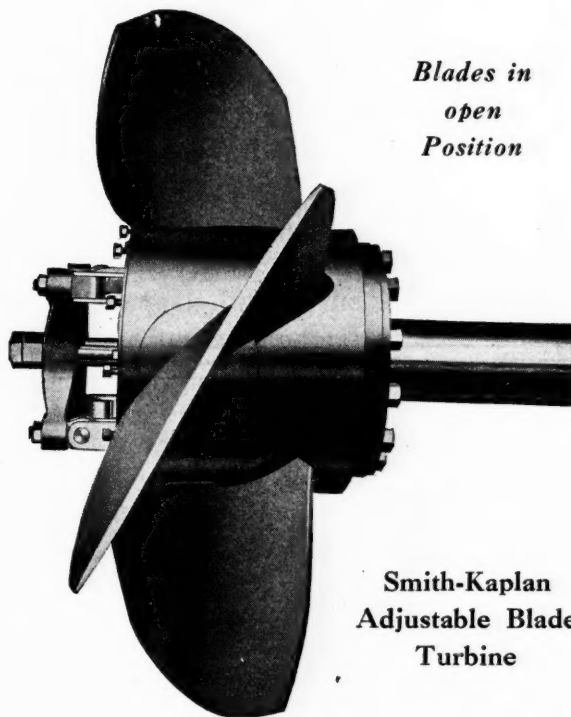
Merced Falls:

At the Merced Falls Development of the San Joaquin Light & Power Corporation, Fresno, California—the *first Kaplan Adjustable Blade Turbine West of the Rockies*, is now in successful operation.

Under a head of 26 feet, at 128 r.p.m., this Kaplan Turbine develops 4750 hp. The plant is automatic throughout.

—Because Smith-Kaplan Turbines have high part-load efficiency, and because they deliver consistent output under variable loads and heads, this type of turbine is best for run-of-river developments. *We are sole owners of Kaplan rights in this country and in Canada.*

"Catalog Upon Request."



*Blades in
open
Position*

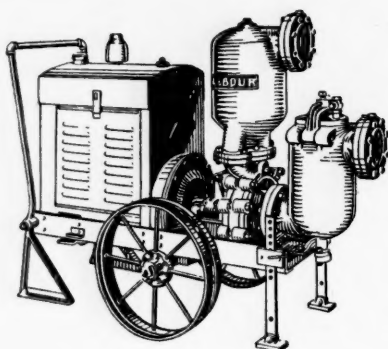
Smith-Kaplan
Adjustable Blade
Turbine

HYDRAULIC TURBINES MORGAN SMITH & CO.

York, Penna., U. S. A.

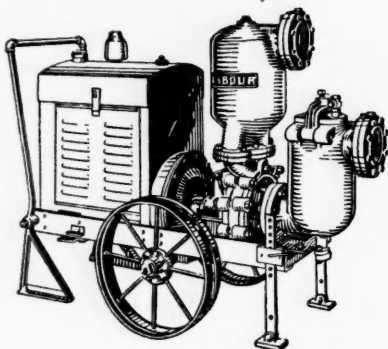
Boston—Chicago—Salt Lake City—Denver—Portland, Ore.—San Francisco
Associated Company—S. Morgan Smith—Ingis Co., Ltd., Toronto, Canada

convenience



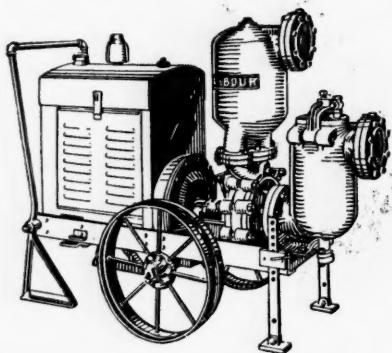
is exemplified in the new LaBour Type W P D pump, which, complete with an 8-10 H.P. 4-cylinder engine, all mounted on a two-wheel chassis for easy transportation, weighs less than 1,000 pounds. One man can move it easily. Adjustable legs assure a solid position on uneven ground so that it is not even necessary to prepare a place to put the pump in operation.

quality



is to be found throughout the design and construction of this newest addition to the LaBour line of contractors' pumps. The pump is self-priming without valves or floats, and will deliver 400 GPM at a 25 foot head. It is guaranteed for a 20 foot suction lift. The suction trap and separator are of cast aluminum, which permits reduced weight without reducing the thickness of the walls. The pump casing is cast iron, while the impeller is a chrome-nickel alloy steel of great wear resisting qualities.

price

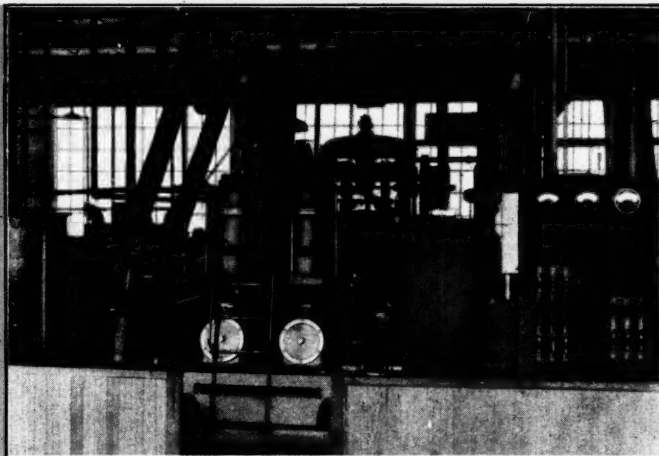


is one of the equally desirable features of this newest LaBour pump. The W P D is easy to get to the job, easy on the upkeep, and especially easy on the pocketbook. Complete, it is priced at \$530, F.O.B. Elkhart. Let us tell you more about it.

THE LABOUR COMPANY, INC.
203 Sterling Ave.
Elkhart, Ind.

LA BOUR PUMPS

NEVER LAY DOWN ON THE JOB



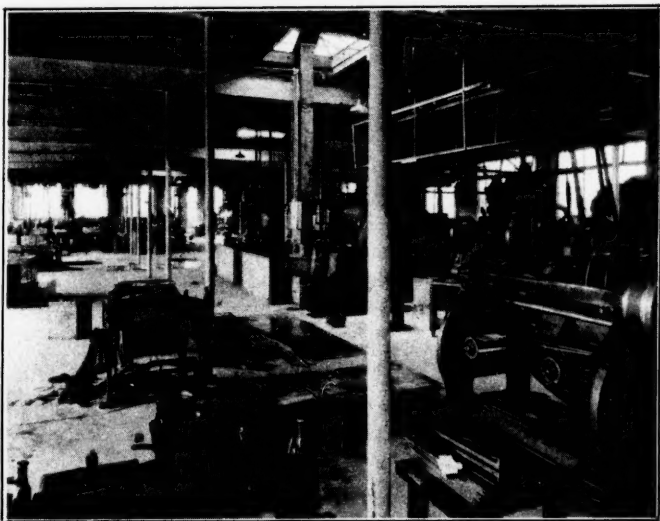
Peak power at base load rates

In many plants the peak demand for power is far out of proportion to the total energy required. If power is purchased the demand charges are high. If steam equipment is used the efficiency is low and the stand-by losses are excessive. Diesel power is the logical solution.

A striking example of such a situation and its solution is found in the plant of the Peerless Pressed Metal Corporation at Watertown, Mass.

Three 10 kw. spot welders were causing such high peak demands that penalties were excessive. Accordingly, an 80 hp. F-M Diesel was installed to drive a 50 kv-a. alternator and the main line shaft of the plant. The alternator takes care of the three welders, as well as about 10 kw. in lighting load and 15 hp. in motors.

The former demand charge on the electric welders alone equals 75% of the cost of fuel for Diesel drive of the entire plant. This is but one item in the total saving effected by this F-M Diesel.



FAIRBANKS-MORSE DIESEL ENGINES

POWER PUMPING AND WEIGHING EQUIPMENT

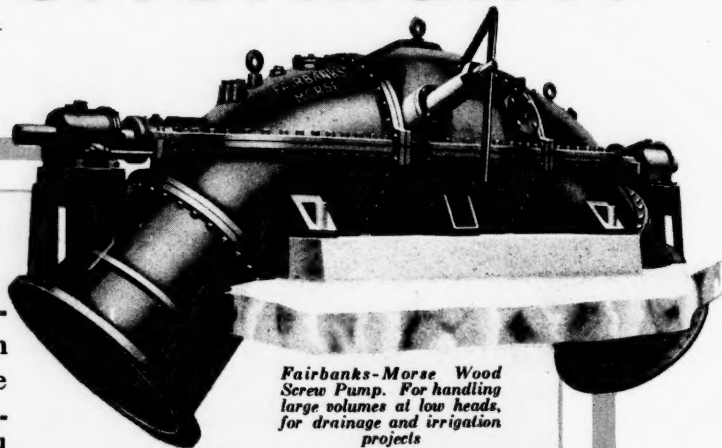


For Assured pump performance

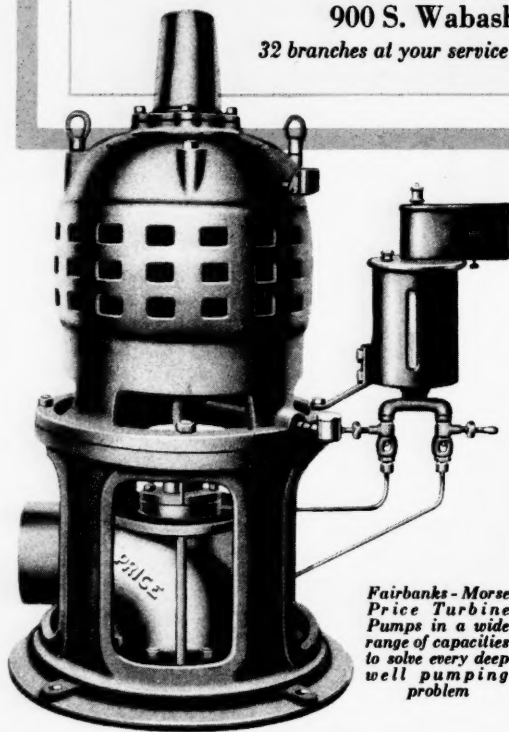
LET the requirements of the job in question determine the type of pump you select. Let your good judgment dictate that the name on the pump shall be "Fairbanks-Morse." Thus you will be assured of the same dependability and long-time service that have won for F-M. Pumps an enviable reputation.

Fairbanks-Morse Pumps are built in styles and capacities to meet every pumping need efficiently and economically. Consult with Fairbanks-Morse engineers regarding your requirements. You will find them competent on both pumping and power problems.

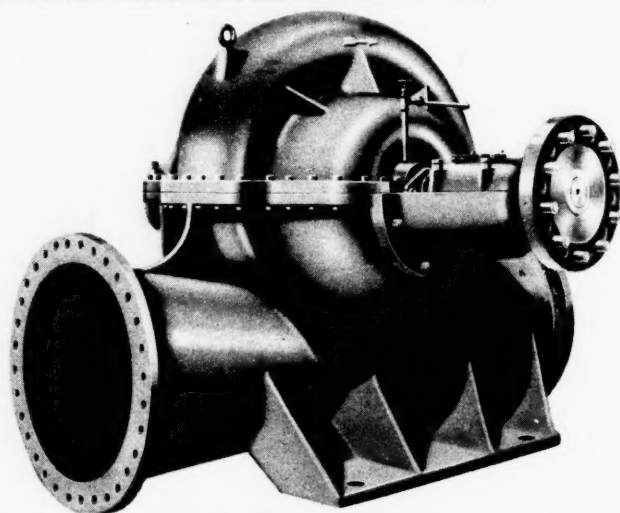
FAIRBANKS, MORSE & CO.
900 S. Wabash Ave., Chicago
32 branches at your service throughout the United States



Fairbanks-Morse Wood Screw Pump. For handling large volumes at low heads, for drainage and irrigation projects



Fairbanks-Morse Price Turbine Pumps in a wide range of capacities to solve every deep well pumping problem



F-M Fig. 800 Centrifugal Pump—typical of a complete line of double suction split case pumps



FAIRBANKS-MORSE PUMPS & MOTORS

OPA40.4



"WATER"

who cares now
what the
hydrants cost?

The

LUDLOW

VALVE

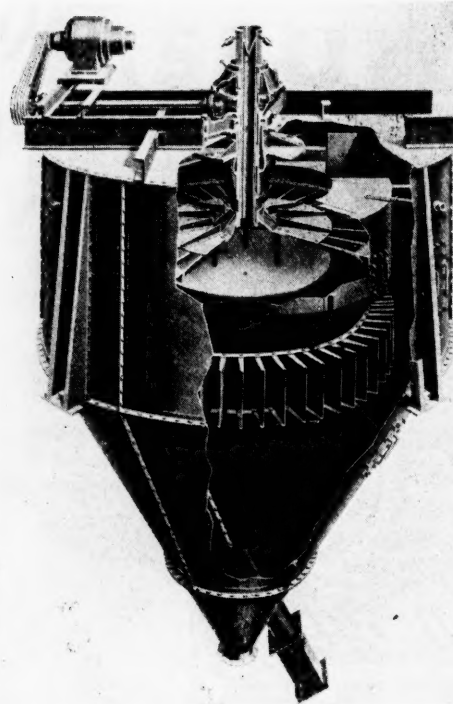
Manufacturing Co.

TRADE MARK

TROY N.Y.

3509

Raymond Mechanical Air Separator showing the inner cone, deflector doors and rugged construction throughout.



THE EFFICIENCY of a SEPARATING UNIT IS DEPENDENT UPON CLEAN TAILINGS

At an eastern plant producing pulverized Feldspar, Flint and Sand, a Raymond Fourteen Foot Mechanical Air Separator is separating flint at the rate of two tons per hour to a fineness of 98.5% passing 200 mesh, as it comes from a tube mill. The fineness of finished product never varies over $\frac{1}{2}\%$ and tailings are clean, averaging 35% of 200 mesh dust. Furthermore, the tube mill grind can vary 10% to 20% in 200 mesh dust and the fineness of finished product from the separator remains the same.

Contrast this performance with other separators used for the same purpose where the mill grind must be better than 80% passing 200 mesh and held constant in order that finished product from separator will remain somewhere near 98% passing 200 mesh. Furthermore, tailings from these separators will carry as high as 65% of available 200 mesh dust.

For efficiency in separating problems investigate the Raymond Mechanical Air Separator.

* * *

A folder describing the Raymond Mechanical Air Separator is available and will be sent upon request.

RAYMOND BROS. IMPACT PULVERIZER CO.

Subsidiary of International Combustion Engineering Corporation

Main Office and Works: 1323 N. Branch St., Chicago, Ill.

342 Madison Ave., New York Subway Terminal Bldg., Los Angeles

The *New* DIAMOND Portable Crushing Plant

Huge Crushing Capacity

Plant has a capacity of 600 tons of rock in 10 hours.

It consists of a 15 x 36 inch **Diamond Timken bearing equipped Jaw Crusher** mounted on a heavy steel chassis fitted with roller bearing wheels.

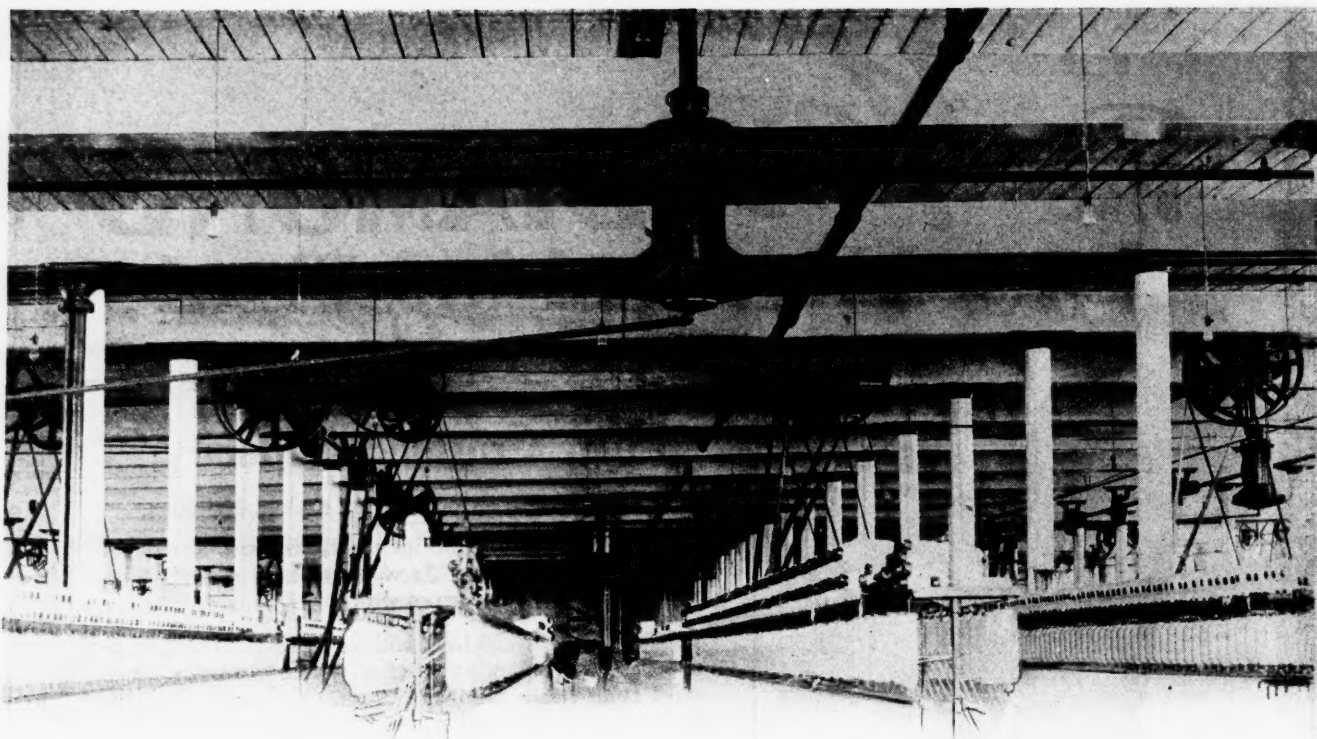
The secondary 26x20 inch roll crusher is arranged to crush 3-inch stone or smaller. The rolls are fitted with removable manganese shells, designed so as to be easily removed when they become worn.

The rock is discharged from the trucks into large substantial steel hopper feeding directly to the jaw crusher. From the jaw crusher it is discharged on a conveyor belt leading to the bucket elevator, where it is elevated to a rotary screen, which removes the dust and grades the rock into various sizes and discharges into a jack leg bin, the oversize being returned to the roll crusher and from there dropped on the conveyor belt to be re-screened.

DIAMOND IRON WORKS, Inc.
MINNEAPOLIS, MINN., U. S. A.

Manufacturers of Roller Bearing Crushers, Portable Crushing and Screening Plants, and all equipment for commercial gravel plants.





Prevent **ROT** in Your Mill Timbers

CONDITIONS in textile mills, paper and pulp mills, refrigeration plants, and many other establishments are known to be conducive to the early rotting of wood. And wood decay is both troublesome and expensive.

Mill timbers treated with Zinc Chloride have from three to ten times greater life than untreated timbers thereby eliminating the need of costly replacements.

Zinc Chloride treated wood is fire retarding and termite resisting. It is clean, odorless and paintable.

Commercial wood preserving plants are available for treating wood under pressure—assuring the deepest possible penetration of every structural timber that goes into your mill. Write us for their names and addresses and more detailed information concerning wood preservation.



THE GRASSELLI CHEMICAL COMPANY

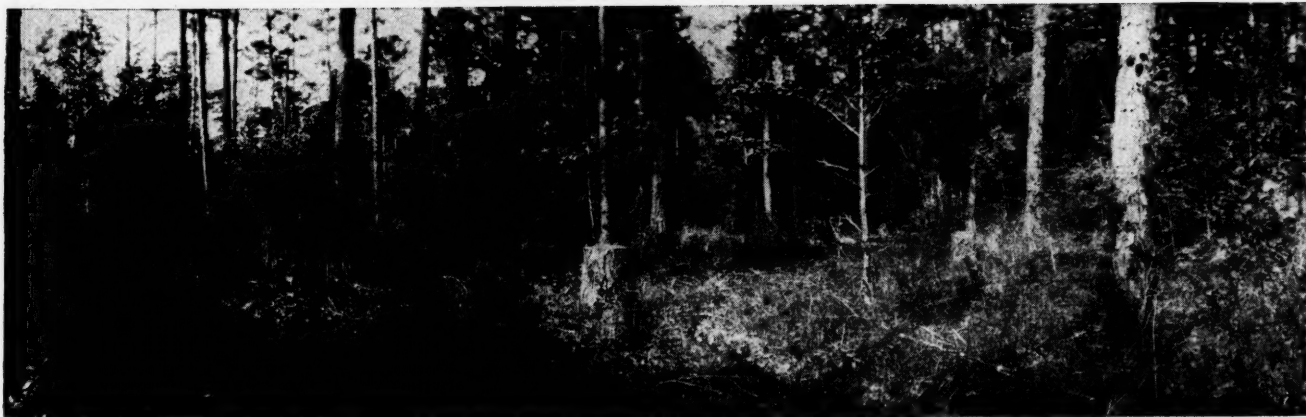
Incorporated

CLEVELAND

OHIO

Branches in principal cities





AmCreCo Timber for highway bridges



Permanent—

AmCreCo bridges last far beyond the term of years for which traffic can be even approximated.

And Economical—

The annual cost is low and the bridge can be widened and reenforced to carry any increase in traffic volume. Creosoted timber has *permanent* strength—an AmCreCo bridge can be moved to a new location and give added years of service.

Easy availability, plus attractiveness, small maintenance, and speed and simplicity of erection, make AmCreCo creosoted timber particularly logical for bridges on Southern highways.

Let us quote.

AMERICAN CREOSOTING COMPANY

COLONIAL
CREOSOTING
COMPANY
INCORPORATED



GEORGIA
CREOSOTING
COMPANY
INCORPORATED

LOUISVILLE — KENTUCKY

DIRECTORY

ARCHITECTS ENGINEERS CHEMISTS GEOLOGISTS
CHEMICAL ENGINEERS ACCOUNTANTS CONTRACTORS

Detailed classification of specialized work undertaken by those having cards in this Directory will be found in Classified Index.

Milburn, Heister & Co.

Architects

WASHINGTON, D. C.

Wm. J. J. Chase, A. I. A.

Architect

Public and Commercial Buildings
140 Peachtree St. ATLANTA, GA.

G. Lloyd Preacher & Co., Inc.

Architects and Engineers

1204 Wynne Claghton Bldg.
ATLANTA, GA.

Mees & Mees

Engineers and Industrial Architects

202 Court Arcade,
CHARLOTTE, NORTH CAROLINA

Leslie N. Boney

Architect

Schools—Public Buildings
WILMINGTON, N. C.

B. Russell Shaw Co.

INCORPORATED

Consulting and Designing Engineers
AIRPORTS—AIRLINES

Arcade Bldg., ST. LOUIS, MO.

James D. Lacey & Co.

Timberland Factors

Forest Engineering—Management
Aerial Surveys—Timber Reports
350 Madison Avenue, NEW YORK
231 So. La Salle St. CHICAGO
JACKSONVILLE—NEW ORLEANS

Airmap Corporation of America

Aerial Surveys and Maps
Consultants and Engineers
The AIRMAP—The Engineer's Aerial
Map for City Planning, Water
Supply Studies, Zoning
Complete Aerial Tax Map Service
42 Flatbush Extension BROOKLYN, N.Y.

J. B. Converse & Co., Inc.

Engineers

Industrial Investigations, reports,
plans, estimates, supervision.
MOBILE, ALA.

Charlton & Davis

Civil Engineers

MIAMI FORT LAUDERDALE
WEST PALM BEACH

Elroy G. Smith

Consulting and Designing
Civil-Hydraulic Engineer
Industrial Hydro-Electric Development
a Specialty
313-313-A Herald Bldg.,
AUGUSTA, GA.

Hornbuckle Contracting Co.

INCORPORATED

Municipal Improvements
Industrial Village Utilities
ATLANTA, GA.

Harza Engineering Co.

Consulting Engineers

Dams, Hydraulic, Hydro-Electric, Flood
Control and Sanitary Projects
20 N. Wacker Drive CHICAGO

S. E. Huey

Consulting Engineer

Civil, Structural, Natural Gas
Ouachita Bank Bldg., MONROE, LA.
City Bank Bldg., SHREVEPORT, LA.

J. E. Greiner & Company

Consulting Engineers

Design, Construction, Investigation, Ad-
visory Service—Bridges, Docks, Piers,
Warehouses and other Engineering
Structures.
1201 St. Paul St., BALTIMORE, MD.

Whitman, Requardt & Smith

Engineers

Water Supply, Sewerage and Structural
Engineering, Reports, Designs,
Valuations.
Baltimore Trust Bldg.
ATLANTA, GA. BALTIMORE, MD.
ALBANY, N. Y.

Chas. T. Main, Inc.

Industrial Engineers

Mills, Warehouses, Complete Develop-
ments.
Electrical, Steam and Water Power
Reports Appraisals
201 Devonshire St. BOSTON, MASS.

C. A. P. Turner

Consulting Engineer

M. Am. Soc. C. E. Reinforced concrete
and Structural Steel Bridges, Buildings,
and Manufacturing Plants.
300 Builders Exchange Bldg.
MINNEAPOLIS, MINN.

Walter H. Wheeler

M.A.S.C.E. and M.E.

Engineers

Mfg. Plants, Buildings, Bridges, Dams,
1000 Met. Life Bldg.,
MINNEAPOLIS, MINN.

Consoer, Older & Quinlan, Inc.

Mems. A. S. C. E.

Consulting Engineers

Water Supply—Sewerage—Industrial
Engineering
317 N. 11th St. ST. LOUIS, MO.
205 W. Wacker Drive, CHICAGO, ILL.

Arthur L. Mullergren

Consulting Engineer

POWER SPECIALIST

770 Board of Trade Building,
KANSAS CITY, MO.

Widmer Engineering Co.

Industrial Engineers

ST. LOUIS, MO.

Fuller & McClintock

Engineers

170 Broadway, NEW YORK
Penna. Bldg., 15th and Chestnut Sts.,
PHILADELPHIA, PENNA.
Walsiz Bldg., 600 Walnut St.,
KANSAS CITY, MO.

Kansas City Bridge Co.

Established 1893

Builders of Railroad and
Highway Bridges
River Improvement Work
General Office, 215 Pershing Road (Union
Station Plaza), KANSAS CITY, MO.

William S. Lee

Mem. Am. Soc. C. E.; Mem. Am. Soc.
M. E.; Mem. Eng. Inst. Can.; Fellow
Am. Inst. E. E.

Consulting Engineer

535 Fifth Ave. NEW YORK CITY
CHARLOTTE, NORTH CAROLINA

MacElwee & Crandall, Inc.

Industrial and Civil Engineers
Investigations, Reports, Design, Super-
vision—Port Development, Piers, Ter-
minals, Airports, City Planning, Water
Front, Reclamation, Industrial Surveys
Main Office: 11 West 42nd Street
CAMBRIDGE, MASS. NEW YORK CITY

Wadleigh and Bailey

Consulting Mining Engineers
Management, Investigation, Appraisal of
Mining Properties.
Fuel Consultants, Natural Resource
Surveys.

One Broadway, NEW YORK, N. Y.
Southern Bldg., WASHINGTON, D. C.

Howerton Engineering Co.

Consulting and Contracting Engineers

MUNICIPAL IMPROVEMENTS
HIGHWAY IMPROVEMENTS
Water Works, Sewer, Hard Surface
Streets, Highways, Contracting Con-
struction. ASHEVILLE, N. C.

Morris Knowles, Inc.

Engineers

Water Supply and Purification, Sewer-
age and Sewage Disposal, Valuations,
Laboratory, City Planning.
PITTSBURGH, PA.

Gardner & Howe

Structural Engineers

Steel and Reinforced Concrete Buildings,
Bridges and Viaducts

Porter Bldg. MEMPHIS, TENN.
Kirby Bldg. DALLAS, TEXAS

Freeland, Roberts & Co.

Consulting Engineers

Concrete and Steel Structures
NASHVILLE, TENN.

C. N. Harrub Engineering Co.

Member Am. Soc. C. E.

Civil and Sanitary Engineers
Water Supply, Sewerage, Paving and
Structural Improvements.
705-9 Fourth & First Nat'l Bk. Bldg.
NASHVILLE, TENN.

Engineering Service Corp.

Consulting Engineers
Civil-Electrical-Mechanical-Refrigeration
COLD and DRY STORAGE WAREHOUSE
DESIGNS
Reports—Appraisals—Designs—Surveys
Docks and Harbor Designs—Ind. Engr.
Water Sup.—Sewer Sys.—Oil and Gas Lines
HOUSTON, TEXAS, U. S. A.

Gilbert C. White Co.

Consulting Engineers

Waterworks Paving
Sewerage

RICHMOND, VA.
DURHAM, N. C.

Robert Cramer

Consulting Engineer

Sewage Disposal Plants and Sewerage
Systems—Utilization and Disposal of
Industrial Wastes, Power Plants.
Design, Construction, Operation, Labora-
tory Service, Valuations and Reports.
757 N. Broadway, MILWAUKEE, WIS.

Smallman Construction Co.

Engineers and Contractors

BIRMINGHAM, ALA.

T. C. Thompson and Bros.

Incorporated 1895

General Contractors and Builders
BIRMINGHAM, ALA.
CHARLOTTE, N. C.

Algernon Blair

Contractor

MONTGOMERY, ALA.

Floyd Jennings & Co., Inc.

Plastering Contractors

132 Cain St., N. E., ATLANTA, GA.

Southern Erectors, Inc.

Steel Erectors

ATLANTA, GA.
TAMPA, FLA.

Walker Electrical Company

Electrical Contractors

General Offices: ATLANTA, GA.
Sales Offices:
ATLANTA, GA. COLUMBUS, GA.
GREENSBORO, N. C.

Hoosier Engineering Co.

Erectors of Transmission Lines and
Substations

100 W. Monroe St. CHICAGO, ILL.
Smith Tower SEATTLE, WASH.

J. V. & R. T. Burkes, Inc.

MEMBER A. G. C.

General Contractors
NEW ORLEANS, LOUISIANA.

Angle-Blackford Company

General Contractors

GREENSBORO, N. C.

John Eichleay, Jr. Co.

Steel Construction
Structural Steel
House Raising and Moving
Shoring and Foundation Work
South 20th & Wharton Sts.
PITTSBURGH, PA.

Fiske-Carter Construction Co.

General Contractors

GREENVILLE, S. C.
SPARTANBURG, S. C.

Poe Piping & Heating Co.

Contractors

For Power Piping, Heating and
Sprinkler Systems
108 S. Main St., GREENVILLE, S. C.

Lee A. Gridley Construction Co.

General Construction

CRANE SERVICE—FOUNDATIONS
KNOXVILLE, TENN.

DIRECTORY

ARCHITECTS

ENGINEERS

CHEMISTS

GEOLOGISTS

CHEMICAL ENGINEERS

ACCOUNTANTS

CONTRACTORS

Detailed classification of specialized work undertaken by those having cards in this Directory will be found in Classified Index.

Steel & Lebby

JOHN A. STEEL, JR.
THOS. D. LEBBY
Engineers and Constructors
The design and erection of concrete and steel structures.
Holston Bank Building.
KNOXVILLE, TENN.

The Warner Service Company

Electrical and Mechanical Contractors
Cor. Clinch and Central Ave.
KNOXVILLE, TENN.

Charles W. Alpaugh & Sons

Hydraulic and Construction Engineers
Dams a Specialty: Investigations, Estimates Free
MANASSAS, VA.

Virginia Engineering Co., Inc.

General Contractors
Government — Municipal — Industrial Buildings — Power Plants — Heating Plumbing — Electrical — Highways Sewer and Water Systems — Dams Fire Protection — Refrigeration
1st Nat'l Bk. Bldg.
NEWPORT NEWS, VA.

The John W. Cowper Co., Inc.

General Contractors
State Planters Bank Bldg.
RICHMOND, VA.

Audit Company of the South

Charles James Metz
President
Mem. American Institute of Accountants
Certified Public Accountant of Georgia
ATLANTA, GA.

Joe B. Martin

Quantity Surveys
CHARLOTTE, N. C.
Sixteen Years Actual Experience

J. L. Myers & Sons

Drillers of Shallow and Deep Wells in the South Since 1894
DENTON, TEXAS

R. S. Withers

Petroleum Geologist
Oil Leases and Royalties
508 Tower Bldg.
JACKSON, MISS.

The Picard Laboratories

Chemists and Inspecting Engineers
Inspection of Cast Iron Pipe, Structural Steel, Cement, Railroad Equipment, etc.
Chemical Analysis of all kinds.
Representation in all Principal Cities
Clark Building, BIRMINGHAM, ALA.

W. Wade Moss, Jr.

Chemist
Research and Creative Laboratories
Development of Industrial Processes
Special attention given to exploration of Natural Resources of Southern States.
Lynch Bldg.
COLUMBUS, GA.

William R. Conard

Inspection and Tests of Materials of Engineering and Construction
Reports, Designs, Supervision
Construction
BURLINGTON, N. J.

Wiley & Company, Inc.

Analytical and Consulting Chemists—
Experts on Fertilizer Materials, Coal, Greases, Food, Drugs, Dairy Products, Chemical and Bacteriological Examinations of Water for Domestic and Manufacturing Processes.
Calvert and Read Sts.
BALTO., MD.

Dow & Smith

A. W. Dow, Ph.B.; F. P. Smith, Ph.B.
Mem. Am. Inst. Ch. Engrs.
Mem. Am. Soc. Civ. Engrs.
Chemical Engineers, Consulting Paving Engineers, Asphalts, Bitumens, Cement, Paving Materials
131 East 23rd St.
NEW YORK

Stillman & Van Siclen, Inc.

Chemists and Chemical Engineers
Analysis and Inspection of Asphalt, Paving Materials, Cement, Concrete Building Materials.
227 Front Street
NEW YORK
BEEKMAN 5261

Barrow-Agee Laboratories, Inc.

Chemists and Engineers
Analysis tests and inspection of all building and construction materials.
MEMPHIS, TENN.
LITTLE ROCK, ARK.
JACKSON, MISS. SHREVEPORT, LA.

The J. B. McCrary Company

Engineers

ATLANTA GEORGIA
MUNICIPAL IMPROVEMENTS
We design and construct Water-Works, Electric-Light and Sewer Systems—Paving and Road Work.

Spoon & Lewis

Consulting Engineers Associates Consulting Engineers
Water Works, Sewerage Works, Streets, Bridges, Industrial Plants, Highways, City and Land Development, Port Development, Harbor Works, Investigations—Designs—Supervision of Construction
GREENSBORO, N. C. BOSTON, MASS.

Fay, Spofford & Thorndike

SANDERSON & PORTER

ENGINEERS

FOR THE
FINANCING—REORGANIZATION—
DESIGN—CONSTRUCTION
OF
INDUSTRIALS and PUBLIC UTILITIES
CHICAGO NEW YORK SAN FRANCISCO

The J. G. White Engineering Corporation

Engineers—Constructors

43 Exchange Place NEW YORK

Scofield Engineering Company

Consulting Engineers

POWER AND INDUSTRIAL PLANTS AND PROCESSES.
Design—Construction—Valuations.
Commercial Trust Bldg., PHILADELPHIA

J. E. Serrine & Company

Engineers

Factory Design: Hydro- and Steam-Electric Plants; Warehouses, Steam Utilization, Sewage Systems, Appraisals, Valuations, Reports.
General Offices: GREENVILLE, SOUTH CAROLINA

Allen J. Saville, Inc.

ENGINEERING AND CONSTRUCTION

Electric Building RICHMOND, VIRGINIA

Hardaway Contracting Company

Engineers Contractors

Water Power Developments, Bridges
COLUMBUS, GEORGIA

Wiley & Wilson

Consulting Engineers

PLANS, SPECIFICATIONS AND SUPERVISIONS
STEAM AND ELECTRIC POWER PLANTS
STEAM HEATING AND VENTILATING SYSTEMS
Complete Mechanical and Electrical Equipment for Public and Private Buildings and for Institutional Groups.
MAIN OFFICE: LYNCHBURG, VA. BRANCH OFFICE: RICHMOND, VA.

Wiedeman and Singleton, Inc.

(Successors to Paul H. Norcross)

Consulting Engineers

WATER WORKS, SEWERS, SEWAGE DISPOSAL
APPRAISALS, VALUATIONS, REPORTS
Candler Building ATLANTA, GA.

Byllesby Engineering & Management Corporation

231 S. La Salle Street

NEW YORK CHICAGO SAN FRANCISCO

James W. Billingsley

Consulting Engineers

Investigations—Plans—Specifications and Supervision
Industrial Plants—Docks—Seawalls—Roads—Bridges and Municipal Work.
NEW ORLEANS, LA.



Lockwood Greene Engineers, Inc.

Plans—Specifications—Reports—
Appraisals—for Industrial Plants

NEW YORK BOSTON CHICAGO
CLEVELAND SPARTANBURG

DIRECTORY

ARCHITECTS

ENGINEERS

CHEMISTS

GEOLOGISTS

CHEMICAL ENGINEERS

ACCOUNTANTS

CONTRACTORS

Detailed classification of specialized work undertaken by those having cards in this Directory will be found in Classified Index.

Cornell-Young Company

INCORPORATED

General Contractors

Railroads and Highways, Reinforced Concrete and Steam Shovel Work.
704 Georgia Casualty Bldg. MACON, GEORGIA

Frederick Snare Corporation

Contracting Engineers

Difficult Foundations and Engineering Problems a Specialty

114 Liberty Street
New York

PHILADELPHIA

HAVANA

Tucker & Laxton

Contracting Engineers

Filters, Concrete Work, Hydro-Electric and Steam Electric Construction
CHARLOTTE, NORTH CAROLINA

Webb Electric Company

Electrical Contractors

Industrial, Commercial and Institutional
Electrical Installations.

ANDERSON, S. C.

Hollowell, Gorham & Company

Auditors, Accountants, Industrial Engineers

COST SYSTEMS—AUDITS—TAX SERVICE

Special Investigations for Consolidations, Reorganizations, etc.
GREENSBORO, N. C. ROCKY MOUNT, N. C.

Tilghman Moyer Company

Bank Architects and Builders

ALLENTOWN

PENNSYLVANIA

Dame-Wolfe & Co.

INDUSTRIAL SURVEYS—FINANCING—
MANAGEMENT

815 15th St., N. W.

WASHINGTON, D. C.

Robert W. Hunt Company

ENGINEERS

Inspection—Tests—Consultation

22nd FLOOR INSURANCE EXCHANGE, CHICAGO
Laboratories and Offices in all Large Cities

Walter H. Flood & Co.

Chemical Engineers

Inspection and Tests

Paving and Engineering Materials

Plant and street inspection on all types of pavements. Reports,
specifications, consultation.932 E. 44th St.,
CHICAGO, ILL.321 Daniel Building,
JACKSON, MISS.

Meigs, Bassett & Slaughter, Incorporated

Chemical Engineers

Research—Design—Engineering
Reports on Projects for Financing

Drexel Building

PHILADELPHIA

Pittsburgh Testing Laboratory

ANALYSIS INSPECTION TESTING RESEARCH

PITTSBURGH, PA.

Branch Offices in the Principal Cities

Established 1881

Froehling and Robertson, Inc.

Inspection Engineers and Chemists

Inspection of Cement, Steel, Pipe, Timber, Brick, Tile
Design and Control of Asphalt and Concrete Mixture
Water Analysis a Specialty.

RICHMOND

NEW YORK CITY

Southwestern Laboratories

Chemical and Testing Engineers

Inspection Steel and Cement for Bridges and Buildings. Creosoted Timber,
Asphalt, Brick, Cast Iron Pipe, Railroad Equipment, Bituminous Pavement
at Plant, Chemical Analysis, Etc. Representation at usual points of origin.
FORT WORTH DALLAS HOUSTON AMARILLO

Courtenay De Kalb

Mining Engineer and Economic Geologist

Reports on Mineral Products

Design and Advice on Treatment Plants for Ores and Non-Metallic Products
15 Gramercy Park NEW YORK, N. Y.

Kennedy-Riegger Drilling Co., Inc.

Engineers & Contractors

Diamond Drill & Wash Borings

30 Church Street

NEW YORK CITY

Sprague & Henwood, Inc.

Diamond Core Drilling and Wash Borings.

For Buildings, Bridges, Dams and all kinds of Minerals

"ANYWHERE"

Main Office

SCRANTON, PA.

Mott Core Drilling Company

Diamond Core Drill Contractors

We Test Coal, Clays and Mineral Properties, Foundation Testing, Dams,
Bridges, Buildings, Wash Borings, Dry Samples.

MAIN OFFICE

HUNTINGTON, W. VA.

Southern Drilling Company

Diamond Core Drill Contractors

Foundation Testing for Buildings, Bridges and Dams

Exploration and development of coal and mineral properties.

SALTVILLE, VIRGINIA

W. R. Pender

Engineering Service Corporation

Fuel Economy

Boiler Efficiency Test

Heat Balances—Power Plant Betterments

HOUSTON, TEXAS.



WE LOOK INTO THE EARTH

By use of Diamond Core Drills

We test foundations for buildings,
bridges and dams. We prospect coal
and mineral lands in any part of North
and South America.

PENNSYLVANIA DRILLING CO.

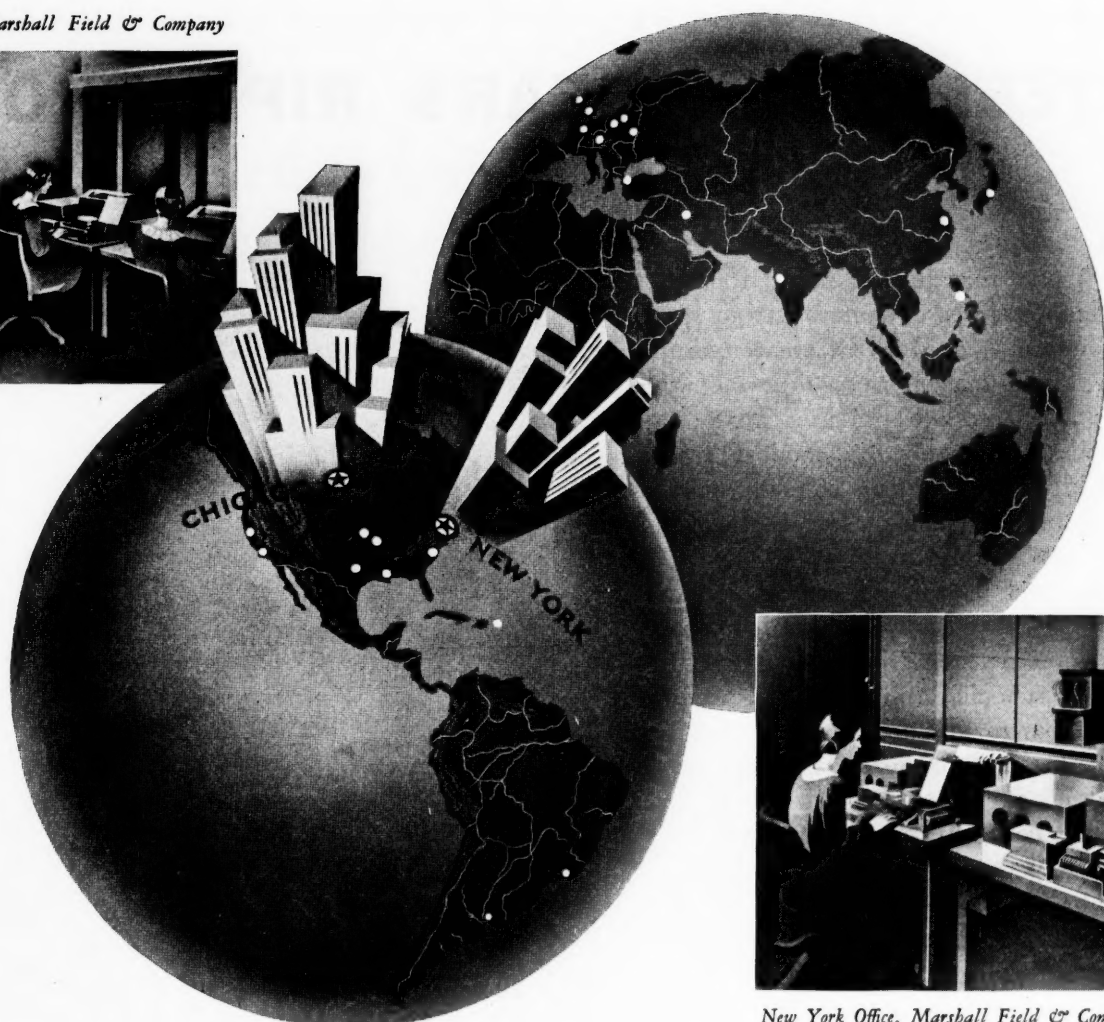
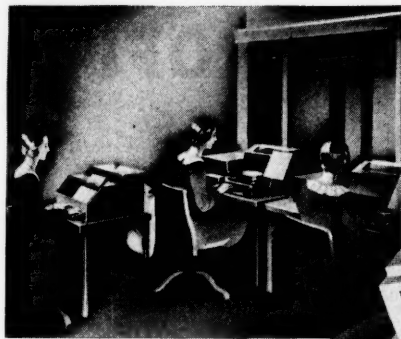
1515 West Carson St., Pittsburgh, Pa.

Drilling Contractors

SEAWALLS WEBER SYSTEM
MANY DIFFERENT TYPES TO MEET EVERY CONDITION.
SAFETY AND MOST PERMANENT CONSTRUCTION.
ENORMOUS SAVING OF COST
FOR COMPLETE INFORMATION WRITE TO:
SHORE-LINE BUILDERS, INC.
JACKSONVILLE, FLORIDA.

WEBER SYSTEM **BULKHEADS**

Chicago Office, Marshall Field & Company



New York Office, Marshall Field & Company

**MARSHALL FIELD & COMPANY,
IN DIRECTING A WORLD-WIDE
ORGANIZATION, USE**

TELEPHONE TYPEWRITER SERVICE

TELEPHONE TYPEWRITER SERVICE* brings the separated units of a company as close together as though they were in the same building. Important information from one office is made instantly available in written form at any other, whether two city blocks or 2000 miles away. Operations of many kinds are speeded up, with resultant lower costs and better service to customers.

Marshall Field & Company, in their wholesale mercantile division, use Telephone Typewriter Service between their Chicago headquarters in the Merchandise Mart, the world's largest building, and their New York office for directing many of their world-wide activities.

Messages to and from buyers, mills and branch offices in all parts of the world are handled between Chicago and New York by Telephone Typewriters. Orders from Chicago to mills on the Atlantic Seaboard are transmitted to New York by this modern method, and relayed from there. The "styling" of goods in manufacture is based largely on Telephone Typewriter messages.

Vital financial information is exchanged instantly. Executive instructions are handled quickly and accurately. Centralized accounting, made possible by Telephone Typewriter Service, eliminates the duplication of records. Credit supervision is aided. Traffic matters are speeded . . . clearing imported merchandise through New York . . . tracing shipments from mills . . . diverting goods in transit.

Telephone Typewriters can be used to exchange written messages between departments in the same building, between buildings in the same city, or between cities separated by thousands of miles. Your local Bell Telephone Company will gladly show you how Telephone Typewriters might serve your firm.

**Telephone Typewriter Service is a modern form of business communication. A message typed in one of your offices is reproduced in identical typewritten form at the same moment in any or all connected offices, no matter how distant. The machines can be operated by any one who can operate a typewriter.*



STRUCTURAL STEEL CREATED THE SKYSCRAPER

STEEL SOON BEARS RIPE PROFITS

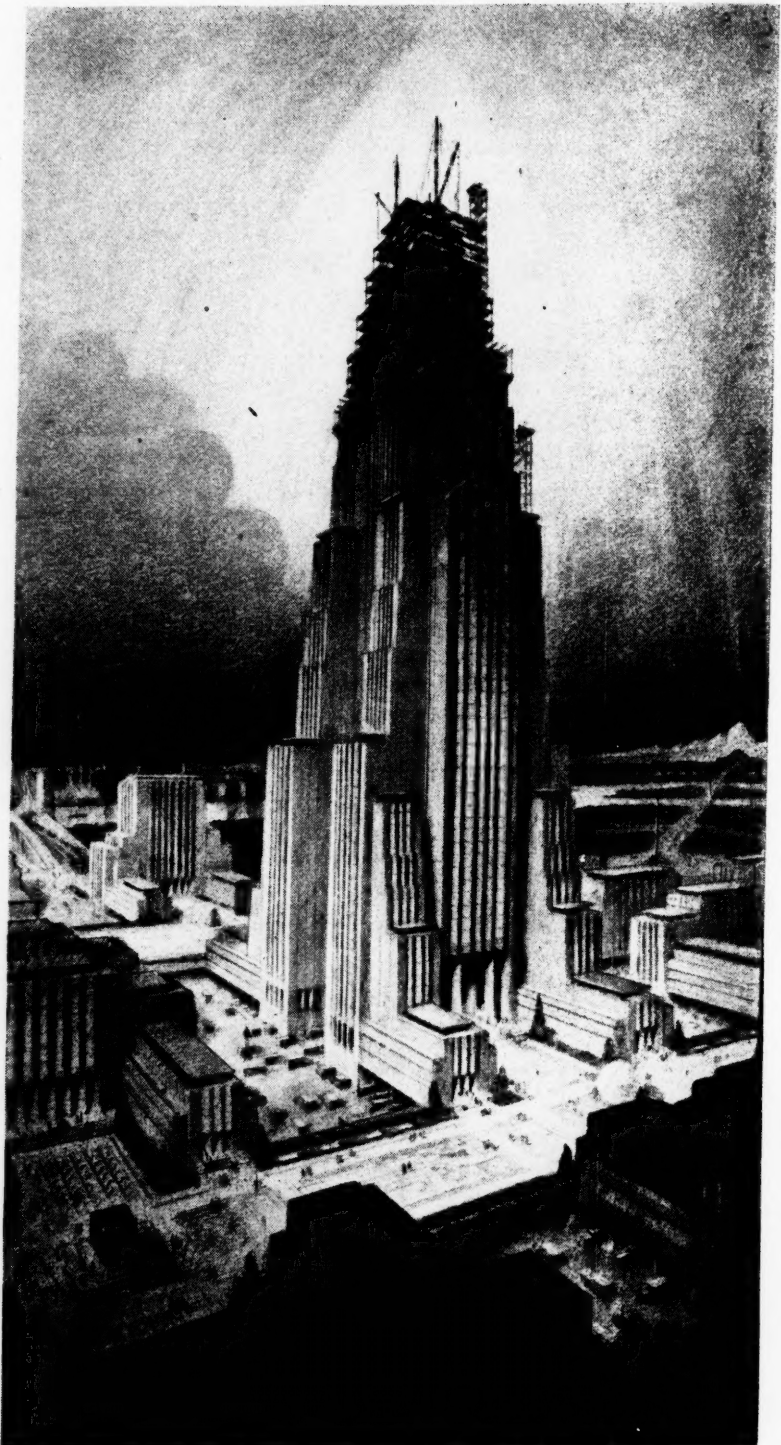
THE "cloud-touchers" are steel! Every one knows that now. Knows, too, that the higher spires and more daring spans to come must be steel. Of greater significance is a growing recognition of this fact: The humble building at a skyscraper's base, or the modest bridge astride a rural stream, is ready sooner, serves better and lasts longer when this matchless metal is used.

For steel brings the same speed and economy in construction, the same predetermined strength and security to homes, schools, and small as well as large apartment and mercantile houses, factories and bridges. It comes to a building site ready to go into place. Heat or cold, rain or snow cannot affect it. It is permanent, fire-resistive, cannot shrink. It may be quickly erected wherever and whenever men can work.

Before building anything, find out what steel can do for you. The Institute serves as a clearing house for technical and economic information on steel construction, and offers full and free co-operation in the use of such data to architects, engineers and all others interested.



The co-operative non-profit service organization of the structural steel industry of North America. Through its extensive test and research program, the Institute aims to establish the full facts regarding steel in relation to every type of construction. The Institute's many publications, covering every phase of steel construction, are available on request. Please address all inquiries to 200 Madison Avenue, New York City.—In Canada, to 710 Bank of Hamilton Bldg., Toronto, Ontario. District offices in New York, Worcester, Philadelphia, Birmingham, Cleveland, Chicago, Milwaukee, St. Louis, Topeka, Dallas, San Francisco and Toronto.



"MUNICIPAL CENTER FOR CITY OF MEDIUM SIZE." AN ENLARGEMENT OF THIS DESIGN BY HUGH FERRISS, ON SPECIAL STOCK FOR FRAMING, WILL BE MAILED WITHOUT CHARGE TO ANY ARCHITECT, ENGINEER OR BUSINESS EXECUTIVE.

AMERICAN INSTITUTE OF STEEL CONSTRUCTION

STEEL INSURES STRENGTH AND SECURITY

TABLE OF CONTENTS

Baltimore, Md., February 5, 1931

EDITORIALS

Business Quickening	Cover Page
Farm Buying Power and Business	35
Federal Revenue Reduced	36
Orders for Alabama Industries	36
Huge Market at South's Door	37
Soviet Menace to the United States	37

NEWS and FEATURE ARTICLES

Building a Reserve for Old Age	By Leroy A. Lincoln	38
Missouri Pacific Increases Grain Elevator Storage		39
\$1,500,000 Church Building Completed in Washington		40
Fundamentals of the Silver Question	By Guy Morrison Walker	41
Educational Influence of Advertising		43
Mobile, Alabama, Improves Its Water Works		44
Insulating Board Plant at Greenville, Miss.		45
Single Lane Pavements	By E. E. Duffy	46
The Rio Grande Valley	By Ralph G. Bray	48
\$35,000,000 Irrigation Projects in Texas		50
\$7,000,000 Carpenter Dam Dedicated in Arkansas		51
Unit Contract on \$3,250,000 Arkansas Hospital		51

SPECIAL DEPARTMENTS

Construction, New Industries and Contracts, 16 Pages, Beginning on Page 55

Iron, Steel and Metal Market	52	Trade Literature	68
New and Improved Equipment	54	Industrial News of Interest	72
Machinery, Proposals and Supplies Wanted ...	70	Financial News	78

Classified Reference for Buyers 100

Alphabetical Index to Advertisers 117

MANUFACTURERS RECORD

Published Every Thursday
by the

MANUFACTURERS RECORD
PUBLISHING Co.

FRANK GOULD, President

MAIN OFFICE
Manufacturers Record Building,
Commerce and Water Streets,
Baltimore, Md.

BRANCH OFFICES
Chicago—11 S. LaSalle St.
New York—901 Singer Bldg.

Subscription Rates: \$6.50 a year (in advance); six months, \$3.50; three months, \$2.00 to United States, Mexico, Cuba, Porto Rico, Hawaii and the Philippines. For Canada add postage \$1.00 a year. For other foreign countries add postage \$3.50 a year. Single copies, 20c.; back numbers, one to six months, 50c. each; over six months, \$1.00.

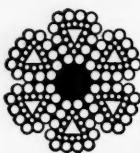
PUBLISHERS DAILY CONSTRUCTION BULLETIN AND BLUE BOOK OF SOUTHERN PROGRESS

Member A.B.C.

"LESCHEN" WIRE ROPE



Leschen Wire Rope is made in various grades and in numerous constructions in order to meet all conditions. Tell us how you use wire rope and we shall be glad to suggest the kind that will give you the best results.



Established 1867

A. LESCHEN & SONS ROPE COMPANY

5909 Kennerly Avenue

ST. LOUIS

New York

Chicago

Denver

San Francisco

LEADITE

Trade Mark Registered U.S. Pat. Office

**For Jointing Cast-Iron Water Mains
Saves at Least 75%**

Leadite Tested and Used for Over 30 Years

Leadite Joints Improve with Age

The Leadite Co., Land Title Bldg., Philadelphia, Pa.

"See our Full Page Ad in 2nd issue each month"

No Caulking'

WELDED

TANKS

STORAGE
PRESSURE
FUEL



PIPE

WATER
DRAINAGE
DREDGE

PONTOONS, BARGES, PLATE WORK

WELDED PRODUCTS CO. OF LA., Inc.

Division of

EQUITABLE EQUIPMENT CO., Inc.

410 Camp Street

New Orleans

KROMOTAN LEATHER BELTING

Highest Pulley Adhesion

*For High Speeds
High Pulley Ratios
Idlers or Tightners*

CHARLOTTE LEATHER BELTING CO.

Plant: CHARLOTTE, N. C.

You Can Reach Twelve Million Prospective Customers from Your Texas Location

A VAST market of people is within overnight reach of your Texas factory or distribution point. These people are busily engaged to-day in making the natural resources of the Southwest return them a larger dividend, creating a larger and even more sustained buying power.

Texas is the heart of a market which demands the careful study of every wide awake American manufacturer. "What am I going to do about the Texas Market?" is a question which must come under the head of "new or unfinished business" in the mind of every maker and merchandiser of goods.

What is your position in relation to Texas today? Sound and dependable information about the opportunities for your business in Texas would be interesting, surely, and might prove very valuable to you. We will gladly furnish specific facts for your consideration. This Company serves a large group of progressive Texas cities and towns with interconnected transmission line electric power service.

Texas Power & Light Co.

General Offices . . . Interurban Building

Dallas . . . Texas

Manufacturers Record

Reg. U. S. Pat. Office

Devoted to the Upbuilding of the Nation Through the Development
of the South and Southwest as the Nation's Greatest Material Asset

Vol. XCIX No. 6
Weekly

BALTIMORE, FEBRUARY 5, 1931

{ Single Copies, 20 Cents.
\$6.50 a Year

Farm Buying Power and Business

ALTHOUGH we are termed a manufacturing nation, farming claims a greater number of our people than any other occupation. This number represents the largest single unit of the nation's buying power. Any curtailment of the farmer's capacity to buy is reflected in decreased sales of the manufacturer and in general business. Such a condition is worthy our most serious consideration, for by increasing the buying power of the farmer we will go far toward lifting business back to the high road of activity and prosperity. Prices of farm products are the lowest in years and it is indeed remarkable that, in spite of this, industry has been able to make the showing it has.

The farmer buys the product of practically every basic industry and it follows directly that when his purchasing power is sharply curtailed all industry must feel the effect. The fact that 90 per cent of our business is done among our own people makes this effect more noticeable. It is as true today as it ever was that a prosperous agriculture is essential to a well-rounded national prosperity.

Our civilization is becoming increasingly complex and our individual tasks are becoming more and more specialized, with the result that our industrial system is becoming more and more dependent on the proper functioning of each component part. Agriculture is providing an increasing volume of raw materials for the nation's industrial expansion. We are now manufacturing products from heretofore waste materials of the farm, such as sugar cane bagasse, wheat straw and corn stalks. The development of the cellulose-using industries is making further demands upon agriculture to supply raw materials. The MANUFACTURERS RECORD feels because of the extent to which industry is involved that a depressed agriculture, as the weak link in the nation's buying power, deserves special attention. It has always endeavored to emphasize important phases of agricultural development which are of interest to and affect the manufacturer, either as the source of his raw materials or as an outlet for his finished products.

Out of a total population of 122,775,000, it must be remembered that 53,819,000 persons are still in the

rural class and dependent upon agriculture for their capacity to buy, not counting other millions in the cities directly or indirectly making their livings from fabricating or distributing the products of the farm. The farmer's income for the past several years has been dwindling and his capital wealth in land and livestock has materially decreased. Livestock values alone were lower at the first of this year than at any other time since 1912. During the past year the total value of livestock on our farms dropped from \$5,888,000,000 to \$4,366,000,000, although the actual number of animals remained practically the same.

The gross income of American farmers in 1930 based on the farm value of 75 crops as of December 1 prices, was \$6,275,000,000, as compared with \$8,675,000,000 in 1929, a decline of \$2,400,000,000, or more than 27 per cent. It is significant that, allowing for a reduction of about 5 per cent compared with 1929 in the volume of crops harvested, the decrease in the amount of money paid to the farmers of the nation for their crops, not counting the value of animals and animal products, should so closely parallel the estimated recession of 20 to 25 per cent in the volume of sales of business in general.

In 1910, with about one-third fewer people in the United States, and a proportionately larger number engaged in agriculture, the crops of the country which were produced on 311,195,000 acres of land brought to American farmers more than \$5,231,000,000. In 1931 the crops were produced on more than 366,000,000 acres and had a valuation of only \$6,275,000,000, with wages and the cost of living at a considerably higher level than in 1910.

Prices dropped in 1930 to ridiculously low levels, lower in many cases than the cost of production. Is there any wonder that the farmer's purchasing power has been cut when wheat brought an average price during 1930 of 60 cents a bushel, corn 66 cents, oats 32 cents, cotton 9½ cents—the lowest prices since 1914 and only half the average prices for the last few years—and with other crops selling almost as low in proportion compared with previous years. Crop prices on December 1 averaged lower than any December since 1915 and wheat, rye and barley brought lower prices than any December since 1899, when our

population was less than 76,000,000, as compared with nearly 123,000,000 today.

The farmers themselves have failed to appreciate their need for an adequate tariff as protection against the cheaper labor of foreign countries accustomed to a lower standard of living. This need should be realized by now, because of the Soviet Government's ability to dump Russian wheat on the American market at a price calculated to make wheat-growing in the United States an unprofitable enterprise. Russia, it is claimed, can grow wheat at a profit at 23 cents a bushel. In proportionate measure other crops, including winter fruits and vegetables, grown in foreign countries, were being sold in the United States for less than our farmers could grow them. Therefore, the limited agricultural tariff which has been put into effect has absolutely saved American farmers from utter economic disaster.

That Congress is alert to the situation is illustrated by an announcement from Washington received after the foregoing was dictated that a bill to raise the tariff on agricultural products had been presented to the House of Representatives.

Congressman A. H. Andresen, of Minnesota, a member of the Committee on Agriculture, is sponsoring an amendment to the Hawley-Smoot Tariff Act authorizing the Tariff Commission to increase the duty on all agricultural products included in Schedule 7 of the Act by 50 per cent for one year during periods of business depression. The first question coming to mind is by what method and who would determine when a depression existed or the severity of a depression before the increased duty would become effective. The bill would also permit the assessment of duties on agricultural commodities now entering the United States free of duty.

It is reasonably contended that the American farmer must reduce his output in order to force up prices. Crops competing in the world market will still have the world price to meet and not much hope for relief can be anticipated from that outlet. Within our own country, provided adequate protection is given to agriculture, we may expect the curtailment of crop acreage to be beneficial in reducing supply and, with normal demand, this would raise the price level, thus stabilizing the business of the farmer and increasing his purchasing power. Bankers and credit agencies must do their part in bringing this about, by influencing and guiding the farmer toward a reduction of acreage and eliminating unproductive lands, with the idea almost paramount that he must increase his per-acre output and reduce his unit cost through better cultivation, better seed selection and the judicious application of fertilizer.

The MANUFACTURERS RECORD presents these facts for the serious consideration of American industrial and business leaders, as we are fully convinced that the prolonged period of depression has been greatly influenced by drastic curtailment of the farm purchasing power of the nation. How to strengthen this link of our business structure is a question that vitally affects our entire population.

Federal Revenue Reduced

THERE was paid into the Federal treasury during 1930 a total income tax of \$2,332,968,000, as compared with \$2,502,805,000 collected during 1929. The tax in each case, however, covers the business done during the previous 12 months. Total income tax revenue in 1930 declined \$169,837,000, of which \$147,759,000 represented a decrease in individual income tax returns as compared with 1929.

Summary of Income Tax Collections

	Corporation	Individual	Total Income Tax
1929	\$1,264,673,000	\$1,238,132,000	\$2,502,805,000
1930	\$1,242,595,000	\$1,090,372,000	\$2,332,968,000

Total income tax collections in the Southern states during 1930 amounted to \$261,901,000, or a decrease of \$30,451,000 compared with 1929 collections. Corporation tax payments made by the South in 1930 were \$157,700,000 and \$166,950,000 in 1929, while income taxes of individuals in the South amounted to \$104,201,000 in 1930 and \$125,400,000 in 1929.

Based on these returns for 1930 by the Treasury Department, it is evident that together with the lower rate in effect, income in 1929 was sharply reduced after the recession set in during July of that year. Following this, enormous losses were incurred by investors by the collapse of the stock market.

Internal revenue receipts from all sources, including tobacco and miscellaneous taxes for 1930, amounted to \$2,932,966,000, or a decrease of \$195,353,000 compared with 1929 Federal receipts. Total revenue collections from the Southern states in 1930 amounted to \$652,909,000, or a decrease of \$10,965,000 compared with the previous year. Tobacco taxes paid by Kentucky, North Carolina and Virginia enabled these three states of all in the South to report a gain in 1930 in Federal revenues as compared with 1929.

Orders for Alabama Industries

POLISHED after the similitude of marble, Alabama limestone from Russellville's Rockwood quarries will be used in the construction of Louisiana's State Capitol, reports the Birmingham News. Also, approximately \$10,000,000 of Alabama cement is to be used for engineering projects under contract in Louisiana.

The News, in referring to the road and bridge building program under way in Louisiana, editorially comments on these substantial orders for Alabama products as being a reminder of how far-spreading are the results of constructive developments wherever started.

These orders, together with recent contracts placed for Alabama-made rails—assuring continuous operation of the Tennessee Company's rail mill for almost six months—have given stimulus to three industries of the State, and their increased activities will in turn affect other industries. It will not require many

such large orders, placed with the basic industries to start an endless chain of activity throughout the State. In other parts of the South also new business is developing to a degree that is encouraging.

Huge Market At South's Door

OPPORTUNITY for American trade with Mexico and the Latin Americas is of special interest to the South, particularly at this time of general readjustment of all world trade. The value of this business to the United States as a whole is stressed by such authorities as Chairman James A. Farrell of the National Foreign Trade Council, also president of the United States Steel Corporation, and Walter Parker of Fenner & Beane, New Orleans; the value of this opportunity to the South cannot be over-emphasized.

While Mexico, Central America and South America themselves possess natural resources in large volume, decades must elapse before they can be appreciably developed. Throughout those years, the United States and especially the South can and should supply both the commodities needed by the people and the machinery required for the upbuilding of those industrially infant countries.

Between El Paso, Texas, and Punta Arenas at the Straits of Magellan are more than 80,000,000 people who for years must be supplied with an impressive volume of commodities of every kind, for present needs and for progressive industrial growth. For that vast area and great growing population, the South is the appropriate source of supply, and the gateway for shipments of such materials as it may not grow or fabricate. A major part of the imports from those countries properly should pass through ports of the South, or cities along the Mexican border.

Eighty million people, of ever increasing enterprise, offer a potential trade which is estimated at \$10,000,000,000 a year.

Soviet Menace to the United States

TIMELY reminder that the Soviet plans to sovietize the United States by force of arms is voiced by Dr. William Braid White, director of acoustical research of the American Steel & Wire Company. In the magnitude of the Russian trade attack on America, the fact that the Soviet also plans a sanguinary revolution must not be lost to sight.

The one great purpose of the Soviet government in Russia is "to bring about a world revolution," Dr. White asserts. Direct corroboration for this statement appears in the "Program of the Communists," promulgated by Nicholas Bucharin in 1919, and still

in operation. "The overthrow of imperialist government by means of armed insurrections and the organization of soviet republics," summarizes this objective in 16 words. "Such is the way to an international dictatorship of the working class," the program adds, and "the most efficient means of supporting the international revolution is the organization of armed forces of the revolution."

To dismiss or to minimize this menace as trivial is shortsighted and foolish. It is real, it is present and it increases in weight each day. For present generations to ignore this menace is, in fact, a betrayal of generations to come. "Smart" editors may deride it, "liberal" educators may soften it and some ambitious business-getters may close their eyes to it; but the fact remains that the menace is ever present and becomes stronger daily. As Bucharin said at the funeral of Voykoff, Soviet ambassador to Moscow: "We announce that never for a minute, never for a second, never for one millionth part of a second will our party retrench (retreat) from those proposals which it has inscribed on its banner."

As Thomas F. Woodlock well says in the Wall Street Journal, the communist program "is squarely opposed at all points to everything on which our western civilization—and particularly our American civilization—is founded."

Not only would it wipe out property as an individual possession, but also it would abolish property in "the means of production." The institution known as property is to be uprooted and "wiped out of the very consciousness of men."

Religion is to be demolished, as in Russia, by "depriving it of the least justification for its existence, of the slightest element of utility to man, materially, spiritually, psychologically," as Maurice Hindus explains in "Humanity Uprooted." Science is to be utilized to destroy the Biblical version of creation, and the acceptance of God, of Christ, of worship.

The sacred rite of matrimony—the foundation of the home and a supreme factor in morality and decency—is to be supplanted by "free love" and "companionate marriage," as now in practice in Russia.

The South is an outstanding objective of the Soviet and communism—"the Southern states, where Americanism is most rampant and least contaminated by contact with tolerant foreigners," as a radical document seized at the Rand School of Social Science described this area.

Communism is conspicuous in agitations fomented in the South to incite free and independent white American labor to discontent. An elaborate program to arouse the negro, even to sanguinary insurrection, has been published, with efforts to put it into effect. "Propaganda Among Negroes" is the title of a chapter which covers 44 pages of a report by a New York legislative committee on "Revolutionary Radicalism—Subversive Movements."

The Soviet subversive movement in the United States is a far greater menace than even the destructive trade war which Russia now is openly waging.

Building a Reserve for Old Age

By LEROY A. LINCOLN

Vice-President and General Counsel,
Metropolitan Life Insurance Co., New York

PROPOSALS for old age retirement benefits, to the number of 327 legislative bills introduced in various legislatures in 1930, have centered much attention on this subject throughout the country. Many of these bills are to be characterized as Poor Relief laws masquerading as Old Age Pension laws. They have to do with the indigent aged but, in the opinion of people who have given much thought to the subject, they afford no general answer to the problem of old age retirement, as such. While the state has the responsibility of caring for the needy aged, and always has had this responsibility, it is thought that the real solution of the problem of old age security for the vast majority of our people, apart from those who must be the recipients of charitable provision, will lie in the avoidance of old age dependency itself, through the medium of provision for old age independency.

In considering the general problem, apart from the problem of charitable provision for the indigent, we have three preliminary and fundamental questions: (1) Who shall participate in organized or regulated effort toward the systematic establishment of reserve provision for their own old age? (2) Who shall furnish the cost of such provision—the community, each individual for himself, employees in industry, or employers and employees jointly? (3) Through what central organization shall these provisions be administered?

Broadly, we may split the population into three classifications: First, those individuals who have already accumulated sufficient reserves to provide for themselves during their later years; second, those individuals who have no means of providing for themselves and have little, if any, prospect of securing them through periodical contributions—unfortunates who through mental or physical infirmity or utter lack of adaptability to the conditions of life are utterly unable to provide for themselves; third, the vast majority of our population, the great, self-respecting independent class which earns its daily bread, clothes and educates its family, provides not only necessities but also luxuries

and, to the extent of a majority of our wage-earning population, life insurance benefits for its dependents.

This last group are the people who should be educated to the necessity, and provided with the opportunity, for setting aside some portion of their current incomes to build what we have termed "reserves for old age." In the relatively few cases in which opportunities have been afforded them, they have shown themselves willing to build up such reserves.

The question as to who shall furnish the cost has been a troublesome one. The indigent must be the wards of their families, their friends, or the community. But should the vast majority of our people become the wards of the community? Community responsibility results in the present generation bearing the burden of the preceding generation, and in its turn becoming dependent on the succeeding generation. If the independence of the American people is to be developed through an organized, regulated and systematic channel, retirement benefits to be paid out at some future date should be met from reserves in hand which have been previously paid in or set aside for the purpose. The responsibility belongs to the community, the individual and industry.

The community should discharge its responsibility by making use of its vast influence and of its character, as representative of the interests of everyone, in advocating the participation of all citizens in the project for the creation of retirement reserves for all, and in guiding the project along right lines, while at the same time limiting its actual financial participation to the cases of those actually unable to care for themselves. The individual and industry must bear the cost of the retirement benefits for the individual.

In many cases the individual is unable

to bear the cost alone, especially those individuals who are advanced in years and who have not been accumulating reserves during the past years, and industry should assist them. Furthermore, there is a very sound economic reason why industry should assist in the reserve accumulation for current service. If an industry employs machinery, sound accounting demands that its current charge to the public for its product shall include an item for the wear and tear and ultimate disuse of such machinery. Human beings are subject to the same wear and tear and ultimate disuse. Their lives and their services are devoted to some employment, industrial or otherwise. Their active years will have been exhausted in such service. But how can industry insist on the ultimate disuse and retirement of these human machines, unless at least part of the cost has been reflected in fact by current contributions of the employer to the fund which is then called upon to furnish the retirement benefit?

Now let us consider the administration of such projects. The most thorough canvass of all available institutions leads to the inevitable conclusion that life insurance is by far the most suitable institution for such a general project. The alternative is state management, with its inherent dangers, which are quite generally thought to exceed the benefits derived therefrom. The spirit of America is not reflected in such a system and it has made little appeal to the American people.

Mortality, sound investment of funds at satisfactory rates of interest, and expense of administration are the main factors involved in the operation of such a project. They are also the factors involved in life insurance, and the life insurance companies have already demonstrated their ability and skill in the administration of their business with its manifold problems, actuarial, investment and otherwise. It is doubtful whether the rate of interest and the soundness of investments under state management will be as satisfactory as under the life insurance companies' management, with state supervision. The complicated ma-

chinery of state government makes it practically impossible to keep expenses down to the minimum established by life insurance companies. Furthermore, there is the element of competition between the various companies which would be absent under state management.

The answer to the three questions, briefly, would be as follows:

First—We should advocate organized

projects for the systematic establishment of retirement benefits by and for all workers in the community, excepting from that term individuals whose situation frees them from the necessity of such provision, and those whose health, or mental condition or incompetence renders them the necessary wards of the public.

Second—The fund from which benefits are to be paid should be built up by

contributions from the employees, supplemented by contributions from employers, the latter contribution to be charged to the cost of the product of the industry or enterprise with which the worker is identified.

Third—The project should be administered by life insurance companies supervised by the state and under regulations fairly prescribed by the state for its most successful development.

Increasing Missouri Pacific Grain Elevator Storage



Missouri Pacific Elevator in St. Louis

In this view is shown also the 2,076,000-bushel addition recently completed at a cost of \$700,000

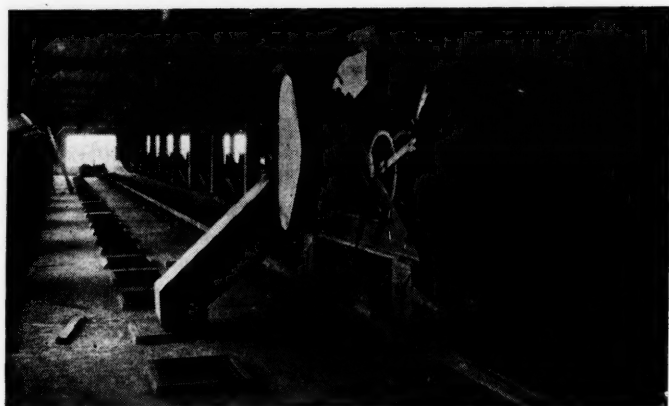
A 2,500,000-bushel grain elevator is being constructed in Kansas City by the Missouri Pacific Railroad Co. at an estimated cost of \$1,800,000, bringing the railroad's grain facilities at Kansas City to 6,080,000 bushels and the total investment to \$3,505,000. The project, including eight miles of service track, will be ready for operation about July 1, 1931. The plant is to be leased for operation to the Continental Export Co., and will occupy three acres and have 126 storage bins.

The railroad now owns two elevators at Kansas City, a 275,000-bushel struc-

ture, representing an investment of \$250,000, leased to the Eagle Elevator Co., and another of 3,300,000-bushel capacity, costing \$1,455,000, leased to the Hall-Baker Grain Co.

A 2,076,000-bushel addition, costing \$700,000, was recently erected to the elevator of the Missouri Pacific Lines at Van Buren and Courtois Streets in St. Louis, fronting on the Mississippi River, construction being carried out by Edwin Ahlskog, Chicago, general contractor, and leased to the Continental Export

Co. for operation. It has an over-all height of 219 feet from the level of the railroad tracks and covers approximately two acres. Floor plan resembles a huge block letter "L," with the battery of 200 bins or storage tanks forming an oblong for the lower half of the letter and a projecting elevator or work house the upper half. The battery of bins, covering an area of 52,805 square feet, is 339 by 160 feet. Each bin is 102 feet high and 16 feet in diameter. The original elevator contained 80 bins and the addition provided 120. Six shipping and six instore conveyor systems, each capable of transporting 18,000 bushels an hour, have been installed. The structure is of reinforced concrete, modern in all respects and embodies many features in design and construction for reducing fire hazard. A cleaning system of suction pipes covers the handling area, to clear the air and elevator house of grain dust. Its location beside the main line right-of-way of the Missouri Pacific and the adequate storage yard tracks with facilities to load and unload grain without loss or waste, makes possible the handling of a large number of cars daily without congestion.



Interior
View of
St. Louis
Elevator

Showing
arrangement
of conveyors
and bin
openings for
handling
incoming
grain

\$1,500,000 Church Building Completed

REPRESENTING an expenditure of \$1,500,000, the National City Christian Church was recently completed in the city of Washington by the Brotherhood of the Disciples of Christ. John Russell Pope of New York, the architect, designed the structure after the American classic style, in keeping with the general architectural scheme of the government and other buildings in the national capital. The building is faced with Indiana-limestone, the portico's ten Ionic columns, 34 feet in height, forming a base for a tower rising 100 feet above the roof line. Capping this tower is a bronze-covered dome culminating in a 26-foot finial finished with gold leaf.

Entrance to the sanctuary is through a rather severe lobby, above which is a small balcony which augments the seating capacity of the church. Three arches supported by Doric columns and terminating in a great chancel arch form the nave. A wainscot of matched St. Genevieve marble extends around this room. The high flat coffered ceiling and acoustically treated walls are of plaster. Within the lateral arches are tall, circular-headed windows.

The chancel, semi-circular in shape, is under a half-dome supported by four

columns of marble designed on the Doric order, as are the other interior columns. The chancel floor is terrazzo. At the right of the chancel is the baptistry, fashioned of Italian 'Cremo marble with panels of St. Genevieve marble. Dark walnut chancel furniture and pews contrast with the grey tone of the building interior. A carved walnut screen, on which is sculptured a reproduction of "The Last Supper" forms a background for the communion table and conceals the organ console.

Concealed by velvet draperies of blue and gold, the organ chamber is at the rear of the choir. The organ is an instrument of four manuals and pedal, giving five separate organs which can be played in any desired combination or independently.

The new church is the main unit of a contemplated building group to include a spacious modern educational building and a small chapel.

General contractor for the project was the George A. Fuller Co., Washington and New York. Subcontractors included:

Structural steel—Dietrich Brothers, Baltimore
Cut stone—Bedford Cut Stone Co., Bedford, Ind.

Reinforcing steel—Rosslyn Steel & Cement Co., Washington
Wrecking—Sidney L. Hechinger Co., Washington
Waterproofing—Contract Waterproofing Co., Washington
Brick work and partitions—David C. Butcher, Washington
Slag blocks and steel—Republic Fireproofing Co., New York
Roof construction—Porete Manufacturing Co., Newark, N. J.
Plastering—Murray Brothers, Washington
Ornamental iron—Fred S. Gichner, Washington
Plumbing and heating—Standard Engineering Co., Washington
Electric wiring—Capital Electric Co., Washington
Steel sash—International Casement Co., Jamestown, N. Y.
Marble, tile and terrazzo, linoleum—Hilgartner Marble Co., Baltimore
Stone and steel setting, millwork, caulking, wood floors, composition roofing—D. A. Daly, Inc., Philadelphia
Sheet metal, kalamein doors, glazing, painting—Wolfstiner Co., Inc., Washington

Tannic Acid Factory Opens

Chattanooga, Tenn.—The local plant of the Marion Extract Co., closed since last August, has been re-opened with a normal force of 50 employees. The plant produces tannic acid used in the preparation of leather. It is understood that sufficient orders have been booked to keep it operating for three months.

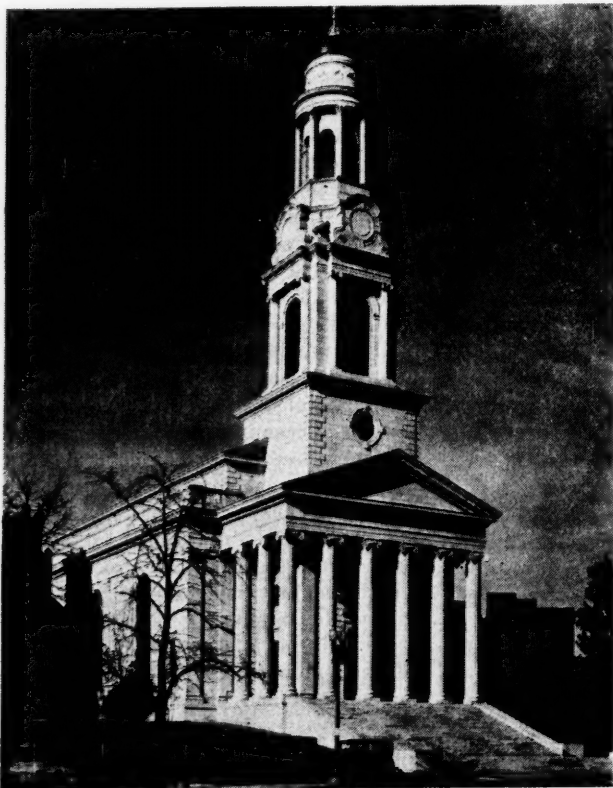
Houston's Growth

"The annual report of the Houston Chamber of Commerce," says the Houston Chronicle, "details a story of splendid achievement." Giving credit to Colonel R. C. Kuldell, president of the chamber, and his associates who have worked unceasingly and with striking success for the advancement of Houston, the chairman refers to the remarkable population growth of the city and its many activities during the past year, including the bringing to Houston by the Industrial Department of the chamber of 354 new firms in 1930. This not only increased the buying power of the community through the annual payroll of \$160,000,000, but savings accounts were greater than ever before and a consistent gain was reported in postal receipts.

Among other efforts, the Aviation Department sought to develop commercial aviation, continuously seeking to promote transcontinental air mail routes along the Gulf Coast.

The Highway Department was the chief factor in South Texas in promoting good roads linking cities and towns in the Houston trade territory, it was stated.

Farmers have been aided by the Agricultural Department and altogether the Chamber of Commerce report for 1930 gives to the citizens of Houston a panoramic view of its many activities.



National
City
Christian
Church
in
Washington,
D. C.

Silver

By
GUY MORRISON WALKER
New York City

THE fall in the price of silver has attracted worldwide attention and numerous have been the attempts to discover the reasons for this decline and to remedy its effect on world trade. A number of propositions have been made to bolster or raise the price of silver, but they all ignore the plain facts.

It has been proposed to force a large loan of silver on the Chinese people in an effort to get rid of the surplus of silver in the United States and the rest of the world. But, what point is there in forcing a loan on a people who at present are too poor to buy anything and who under present conditions could not possibly hope to repay any loan?

There is an extraordinary amount of misapprehension and misinformation regarding the use of silver in China, India and elsewhere in the Orient. It is common to refer to China as a country that is on a silver basis, but unless you define what you mean by silver basis you are deceiving those who rely on such a statement. China is on a silver basis only to the extent that it is on a copper basis, and that is that most of their prices, the wages of labor and the legitimate business of the country are on a scale so small that the values can only be represented by pieces of copper and pieces of silver of a size convenient to handle, but the price of every commodity, including labor is on a gold basis, though the price and wage be paid in silver or copper according to its gold value.

The old copper coins bear denominational values, but they are circulated only at their commodity value. I have carried for years as pocketpieces a couple of Chinese copper coins which are marked "ten-cash" pieces, but they never circulated except for two-cash, or one-fifth of their nominal value. They circulated as two-cash because that was their intrinsic value. When, during the war, copper went up to enormous prices, the Japanese traders took advantage of the ignorant Chinese to buy up literally

THE MANUFACTURERS RECORD welcomes the opportunity to present this article on silver and conditions in the East by Guy Morrison Walker, a recognized economist who spent several years in China. Mr. Walker analyzes the fundamentals of the silver question that has engaged so much attention of late and points out that China, in spite of popular opinion to the contrary, is actually on a gold value basis. He advocates a gold loan to China for the building of railroads and highways.

"What they are fighting for," he says, "is wages sufficient to live on. * * * What China needs is development—development of the most fundamental kind, and it is time for the world to realize there is no possible chance for peace in China under present conditions."

The author finds hopeful signs in the fact that Mexico has at last turned its back on communism. The folly of the Hindu propaganda of strikes and non-cooperation is being recognized in India, and China remains a great opportunity as an investment field for capital.—Editor MANUFACTURERS RECORD.

tons of the copper cash for a fraction of their metal value and exported them out of China to be reduced to copper bar before the masses of Chinese people learned of the rise in the price of copper.

If you buy furs or wool in northern China, the price will be named in taels of silver; but, a tael is a Chinese ounce and there is no coin of that size or denomination. While the purchase price for the furs or the wool will be paid in silver bullion, the price of the fur or wool is in terms of its gold value, while the consideration is paid with silver bullion at its commodity value in terms of gold. The truth is that China is no more on a silver basis than is Great Britain or the United States.

If China were on a silver basis in the popular sense, the decline in the price of silver would have led to enormous purchases of everything that China had to sell, and its export from the country. But, the truth is that China has had nothing to sell. The firms in Eastern trade, as they noticed the price of silver go down, imagined that there would be enormous profits in buying Chinese articles of export and so, in anticipation of such business, they shipped large

quantities of silver to Shanghai, in order to have it available for buying Chinese goods.

Now, the Chinese merchant is the most adept smuggler in the world and if there had been anywhere in the interior of China anything exportable it would have come out, in spite of bandit generals, military taxes and every other obstacle. But, though Shanghai was stocked with silver and the port was full of buyers ready to buy, there was nothing to be had in the market.

It has gradually become apparent that, instead of the fall in the price of silver being the cause of depressed conditions, it is the condition that has caused the fall in the price of silver. Civil war, roving armies of bandits and the impositions of successive generals with their hordes have brought Chinese production—not only manufactured, but also agricultural productions—to a standstill, and have spread famine throughout China.

For the first time in its history, China, which has always been a self-supporting country agriculturally, has been compelled to buy food products from abroad and, as it was manufacturing nothing

for export, it was compelled, beginning about two years ago, to draw on its hoarded masses of silver bullion to buy food products in the foreign markets, for which it paid with gold exchange. Bankers have been reluctant to believe this, but it is now indisputable and the leading banking interests of Great Britain have just admitted for the first time that China has been selling silver to buy gold exchange with which to buy food. This has been going on for two years, but was called to public notice only some six months ago. It has been and still is the precipitating cause of the fall in silver.

Second only to the conditions in China have been the revolution in Mexico and the civil unrest and uprisings in India.

In September of 1930, a Chinese scholar, Doctor Ho, director of economic research at Nankai University (Tien Tsin), published a most extraordinary review entitled: "A Century of Silver," in which he traced from 1830 down to the present time the price of silver in English pence, and its relation to commodity prices in England during this whole period, with the purchasing power in China based on the commodity prices.

It shows that, in spite of the fall in the price of silver, the fall in the price of commodities has been so great during the past century that, in the face of the low price of silver, its purchasing power in commodities has not been impaired to anything like the extent that is popularly supposed.

Among other things, he said: "The depreciation of silver is in part a reflection of the appreciation of gold in terms of commodities." And he explains his charts, saying that "the purchasing power of silver is measured by commodity prices, calculated in terms of gold currency." But, he blames the fall in silver on the Mexican revolution, explaining: "The silver of Mexico is mostly, if not all, sold abroad for gold credits, which in turn are converted into commodities that Mexico needs for production or consumption or both." He explains that Mexico's position is like the Chinese: "Mexico is not at all interested in the amount of gold or gold credit received for its silver exports; it is interested in the amount of commodities that its silver exports will buy. For, gold to Mexico or to any other country or individual is a physical or purchasing power."

As long as China remains unproductive, as at present, and is compelled to keep on drawing on its resources of silver bullion to buy gold exchange to pay for food, there can be no hope for improvement in the price of silver. But, it is an utter mistake to think that demonetization of silver has ever had

any effect on its value in China; for it has never been monetized. It has simply been a precious metal commodity in the markets and, as such, a subject of barter in the same way as rice, oil or building materials.

It is doubtful that the so-called "demonetization" of silver by the Indian Government has had any effect on the price of silver, as the natives of India always have used silver simply as a precious metal commodity, as have the Chinese, and even when they accumulated silver coins the natives usually melted it up into masses of bullion. Among the poorer classes, the family savings were represented by silver bracelets or anklets worn by the women of the family.

India's real contribution to the decline of the price of silver has been, like that of Mexico and China, due to the strikes, the riots, non-production and the propaganda of Gandhi. Production in India is at the lowest point it has been for two generations, and India, like Mexico and China, has been compelled to draw on its resources of silver bullion to buy gold exchange with which to buy its necessities. India's exports have fallen off enormously, for the Hindu propagandists have not discovered that in their effort to strike at British trade they have inflicted an almost irreparable loss on the natives of India, themselves.

What the price of silver needs, and what the trade of the world needs, is an end of communism and agrarianism in Mexico, an end of civil war and Soviet Russian propaganda in China and an end of strikes and Gandhi propaganda by Hindu fanatics, who think that a population 98 per cent illiterate are fit for self-government, in spite of the fact that there is no spoken language intelligible to more than one-tenth of the whole population. With 325,000,000 people, Bengali, which is probably the widest spoken language, is used by only 35,000,000 and is unintelligible to any of the rest of the country.

Some years ago, I noticed that the bank notes of Calcutta had the denomination printed on them in 12 different languages. The bank notes of Bombay carried the denomination in 10 languages, those of Madras in eight. But, there were only two of the 12 used in Calcutta that were printed on the bank notes used in Bombay, while the bank notes of Madras carried two of the languages of those of Calcutta, one that appeared on the bank notes of Bombay and five languages that appeared on neither of the others. There is far more hope of the lion and the lamb lying down together than there is of the Hindu and the Moslem agreeing to one man, one vote. Every Moslem "knows" that

he is equal to at least five Hindus.

But, the signs are most hopeful.

Mexico at last has seen the folly of communism and agrarianism and has turned its back on communism to seek again the highroad to prosperity.

The folly of Hindu propaganda, of strikes and non-cooperation is becoming apparent, as Britain has challenged the natives to agree among themselves on any plan.

China remains the greatest and best opportunity for a capitalistic world to spend a large sum in constructing the railroads and highways, the telephone and telegraph lines that China needs, and the raising of the standards of living of a people that number almost one-third of the human family. I have urged this ever since it was first proposed to return the Boxer indemnity money to China. The system of scholarships has been excellent, as it has brought an increasing number of the brightest young Chinese to the United States to see what our standard of living is. But, it would have been far better, as I proposed, to use the money to construct an American system of railroads in a strategic place, where the benefits of our standards of living and our way of transport would have been visibly demonstrated to millions of Chinese people, whereas they have been seen by individual students who have come to this country.

It is useless to talk of a silver loan to China as a method of boosting the price of silver; for, a silver loan would have to be repaid some time in silver, and that is just what no silver producer wants. What the development of China calls for is a large and substantial gold loan for the building of Chinese railroads and highways. But, the work of building Chinese railroads and highways would be paid for in silver bullion and under these conditions the silver so paid would remain in China. It would never come back. Such a loan, if handled as it ought to be, by a constructive commission largely American and British, would pay the bandit armies which would be employed as railroad builders. What they are fighting for, is wages sufficient to live on, and railroad construction can afford and will pay them twice as much as they could ever hope to make as soldiers or bandits. Such a loan not only would pacify China, but also would protect the world against Soviet propaganda. The building of these railroads and highways will raise land values all over China, enrich the Chinese people and raise the wages of every coolie and artisan, to the remotest province of the country. It would almost certainly raise the average wage of labor in China to 20 cents (gold) a day and this would

mean at least the quadrupling of China's foreign trade.

Any other loan proposition not only would do no good to the silver producers, but also would simply give the bandit chiefs another bit of plunder to fight over.

What China needs is development, development of the simplest and most fundamental kind. It is time for the world to realize that there is no possible chance for peace in China under present conditions. As soon as the Chinese leaders show any disposition to agree on a program, they are immediately threatened, influenced and subsidized by the Soviet Russians on one side and the Japanese Government on the other to continue the fighting and prolong the period of anarchy and maintain the condition of chaos.

The civilized world must intervene to protect the Chinese people from the sinister influences that are bent on their destruction if unable to use them for their own ends. It will astonish most people to learn that China is the only country in the world without continuous roads from one part of the country to another. The two-wheeled carts which are common in North China are absolutely unknown south of the Yellow River. In most provinces of China, it is impossible to use a two-wheel vehicle

outside of the limits of the largest cities. The so-called roads are nothing but trails or paths for wheelbarrows or human carriers on foot. Most transportation is by waterways, many so narrow that two small boats can scarcely pass, and the locks from level to level are nothing but mud banks made slippery with a few buckets of water. Yet, in this primitive manner is now carried all of China's vast trade. Stabilize Mexico, India and China, develop their transportation facilities, raise their standard of living, start them to producing again, and the price of silver will mount as if by magic.

The people who want silver must produce something to give in exchange for silver. Silver cannot be restored in any other way.

\$500,000 Hospital Project

Nashville, Tenn.—Bids will be opened February 16 in the office of Asmus & Clark, architects, for new units and improvements at the General Hospital here to cost about \$500,000. Separate plans cover an addition to the main hospital; nurses' home addition, and remodeling the present building. Y. W. Hailey is chairman of the hospital board.

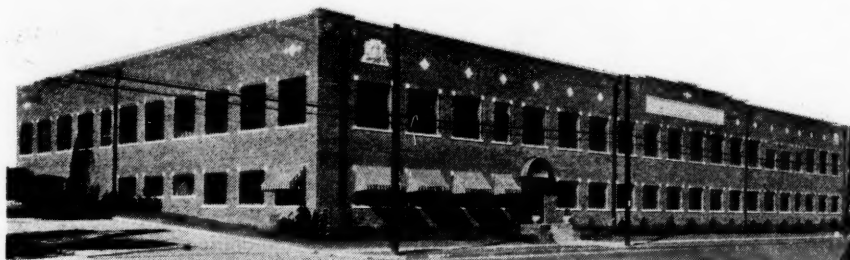
Baking Plant

H. H. CLAUSSEN'S SONS of Augusta, Ga., completed recently at Greenville, S. C., a \$200,000 plant, to be operated under the name of the Claussen Bakery. The first floor of the plant is taken up by the offices, refrigerating machinery, cold storage compartments and warerooms. The second floor is occupied by the dough mixing room, the dough room, wrapping and shipping departments and the oven, which is of the traveling type and has a capacity of 2200 pounds of bread per hour. Speed of the

mobile parts of this oven can be regulated by means of a variable speed attachment. An even degree of humidity is insured by steam connections.

The Claussen-Lawrence Construction Co., Augusta, built the plant. Subcontractors included:

Steel Sash—David Lupton's Sons Co., Philadelphia
Structural Steel—Greenville Steel & Foundry Co., Greenville
Lumber—Wysong Lumber Co., Greenville
Face Brick—Richland Shale Products Co., Columbia, S. C.
Common Brick—Merry Brothers, Augusta.



Modern Bakery Completed Recently at Greenville, S. C.

Educational Influence of Advertising

Advertising as "an incentive for men to do and to dare" was discussed by Benet Chapple, vice-president of the American Rolling Mill Company, Middletown, Ohio, at recent meetings of the Advertising Clubs of St. Louis, Chicago, Detroit and Cincinnati. Advertising, he added, is woven all through the warp and woof of life.

As an experiment, said Mr. Chappell, he had asked a boy 14 years old to mention all the advertised names he could recall.

"With startling ease, he listed 79 well advertised products from memory. I was amazed," Mr. Chappell continued.

In the quickstep of modern civilization, as Mr. Chappell saw it, "every great forward stride seems somehow to be linked with the educational influence of advertising—it has furnished the background, inspiration and motive power for a great deal of the progress which has been made. Invention and manufacturing are all-important in industry, and transportation is another factor; but advertising is the most potent force in the world for creating higher demand."

Without advertising, said Mr. Chappell, human incentive would be undermined, and he continued:

"The depression of the past 18 months gives us some hint of what happens when one of the creative forces of business, such as advertising, is withdrawn, due to severe worldwide economic conditions.

"Advertising cannot be expected to prevent depressions that come from maladjustment of production, but it can make the slide down less abrupt, and it can furnish a sure ladder for a quicker climb back to normal again.

"Every day, more businesses are coming out of their storm cellars and adjusting their ladders. Even though the progress upward may be slow, it will be all the more sound for that very reason."

As to who profits most from advertising, Mr. Chappell felt that society as a whole seems to be the chief beneficiary. Advertising has made the consumer a better buyer, and every man has become, to a certain extent, a connoisseur.

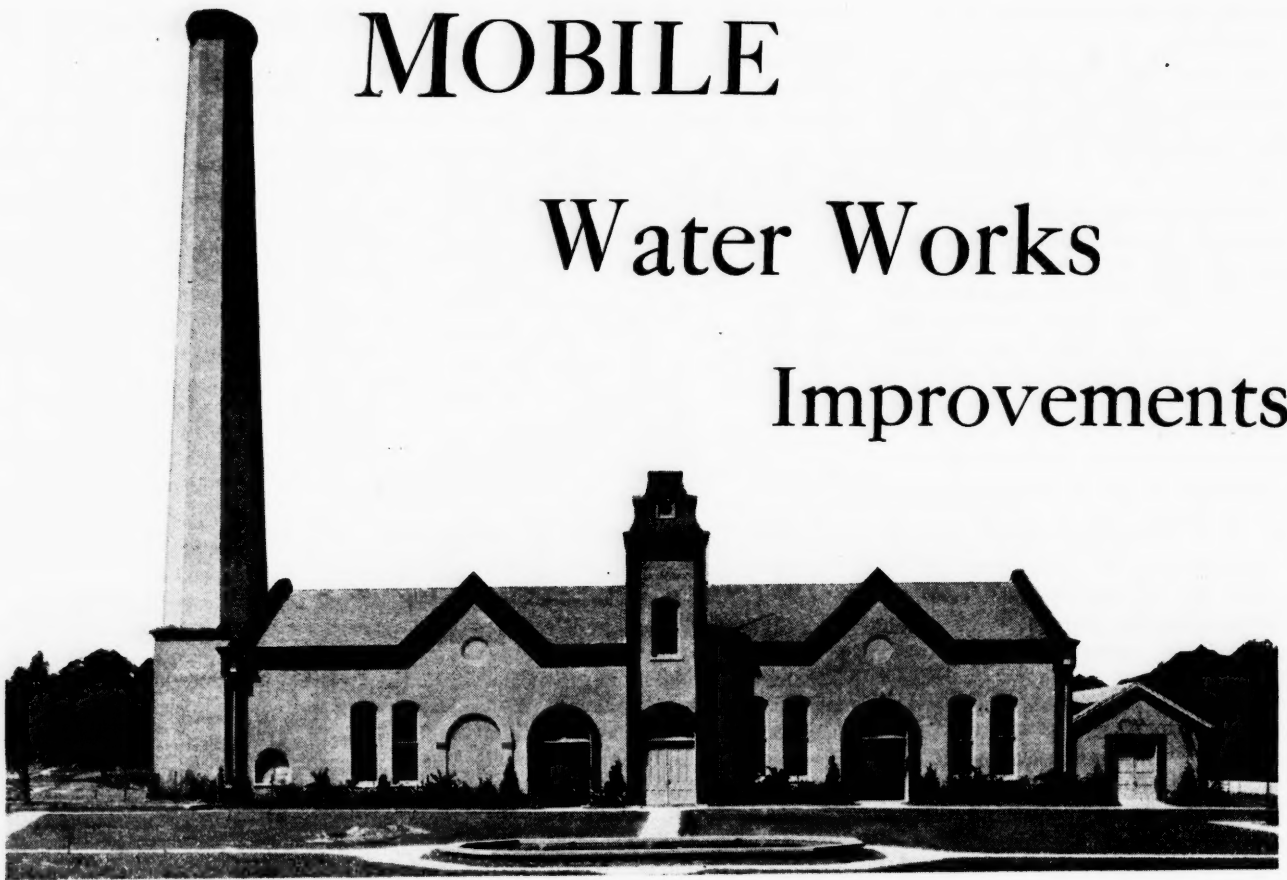
Bids on Thread Mill

Austell, Ga.—Bids will be opened February 11 in the office of J. E. Sirrine & Co., engineers, Greenville, S. C., for mill units at Austell for the Clark Thread Co., John B. Clark, president, Newark, N. J. Separate bids will be opened for 75 cottages.

MOBILE

Water Works

Improvements



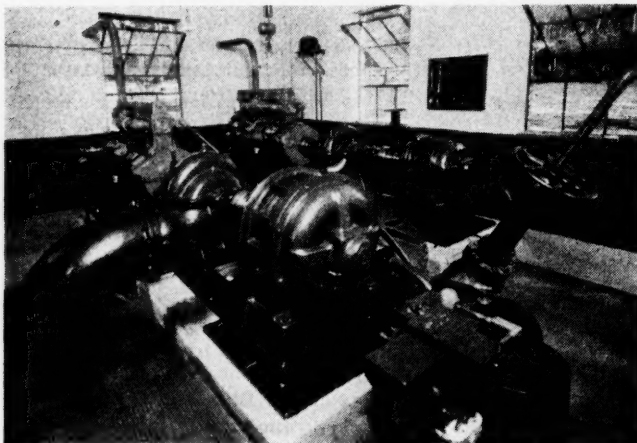
Exterior of Bienville Pumping Station, Mobile, Alabama

THE city of Mobile has recently completed improvements to its water works system involving the expenditure of \$400,000, and \$200,000 in bonds has been voted for additional facilities.

Water is obtained from the Bienville and Springhill pumping stations, both within a radius of seven miles of the city. Obsolete pumping machinery was replaced with modern apparatus at each

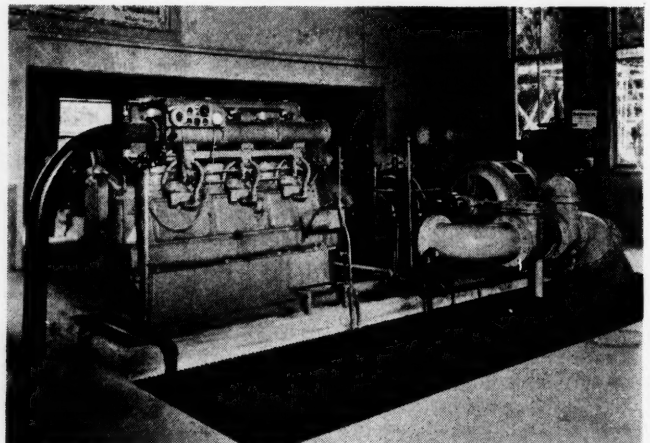
station. A dual drive centrifugal pump, with 400-horsepower motor and 425-horsepower gasoline engine, having a capacity of 9,500,000 gallons daily, was installed at the Bienville station. At Springhill the new equipment includes a dual drive centrifugal pump, with 400-horsepower synchronous motor and 425-horsepower gasoline engine, having 7,500,000 gallons daily capacity; dual

drive centrifugal booster pump, with 50-horsepower induction motor and 60-horsepower gasoline engine, with 7,500,000 gallons daily capacity; dual drive centrifugal high head service pump, with 30-horsepower induction motor and 90-horsepower gasoline engine, with a capacity of 575,000 gallons daily. Other improvements included reroofing and painting the pumping stations, erecting



Interior of Springhill Booster Station

DeLaval Booster pump in foreground, 7,500,000 gallons daily, with gasoline engine and induction motor. Background shows DeLaval high head service pump



Interior of Bienville Station

View shows DeLaval pump, capacity 9,500,000 gallons per day, with Sterling 450 horsepower gasoline engine and General Electric synchronous motor

industrial fences around two reservoirs, cleaning intake mains in outlying districts, installing a 150,000-gallon tank and 13,000 feet of 24-inch cement lined cast iron pipe.

All equipment was furnished and installed by Burford, Hall & Smith, Atlanta, Ga. Pumping equipment was manufactured by the De Laval Steam Turbine Co., Trenton, N. J.; electrical equipment by the General Electric Co., Schenectady, N. Y.; gasoline engines by the Sterling Engine Co., Buffalo, N. Y., and pipe by the Central Foundry Co., New York.

Improvements for which bonds were recently voted include laying mains and giving fire protection to three new districts recently taken in by the city, laying 16-inch main to furnish additional water to large industries in the southern part of the city, installing extra valves

on large supply lines, placing valves on fire hydrants in the business district and completing extensions in two districts outside the city limits.

Report on Pension Plans

The extension throughout industry of pension plans, adequate in their provisions, equitably administered and soundly financed will do much toward removing any real need or excuse for state pensions, says a report on "Elements of Industrial Pension Plans," by the National Industrial Conference Board, New York. The report deals with various types of pension plans, contributory and non-contributory, and purports to show that the failure or abandonment of any plan has usually been due to unsound financing.

Frozen Foods Association

Atlanta, Ga.—The Frozen Foods Association was recently organized here to promote and assist research, experimentation and investigation for improving marketing, manufacture and consumer-acceptance of frozen foods. It was agreed to co-operate with the American Institute of Refrigeration in work of mutual interest and to direct the executive committee of the new association to accept overtures for affiliation with the Institute through group association membership. H. P. Stuckey, director of the Georgia Experiment Station, was named president of the association; A. W. Luhrs, chief engineer of the Paper Industries' Association; W. T. Comer, of the Crystal Carbonic Company, and W. R. Tucker, vice-presidents. C. T. Baker, Atlanta, was nominated as secretary and treasurer.

Natural Gas Fired Dryer for Insulating Board Plant

PIONEERING in the use of natural gas for drying insulating board, the Chicago Mill and Lumber Corporation, in its plant at Greenville, Miss., reports that this method costs only about one-third as much as drying by steam from coal, and the cost of installation is approximately two-thirds less than the cost of a boiler plant. Moreover, the drying process is entirely automatic.

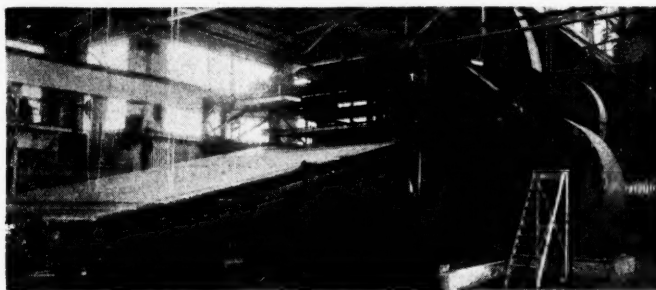
Weatherwood, the product made of wood fiber at the Greenville plant, is half an inch thick and comes off a huge cylinder in a continuous sheet 12 feet wide. As it leaves the cylinder the

board contains approximately two pounds of water for every pound of dry board. Complete removal of this water is ac-

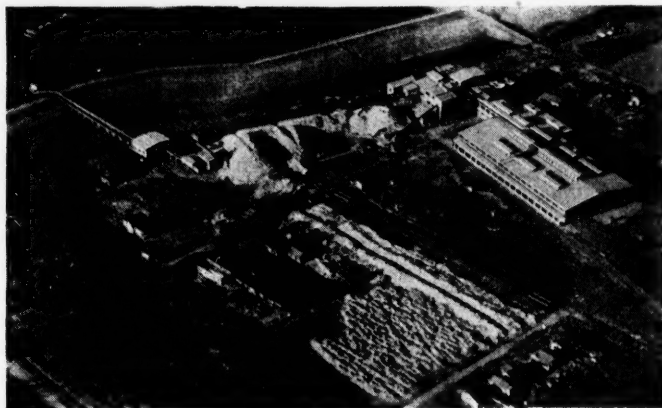
complished by use of direct heat dryers which burn natural gas.

The dryer, designed by C. E. Carpenter, is 15 feet high, 14 feet wide and 300 feet long. Its upright dimension is broken into eight decks, one above the other, about 18 inches apart. The 12-foot strip is sawed into sections which are automatically fed into the dryer. A feeding device moves from one deck to another keeping the dryer filled. Heat

Weatherwood
Entering
the
Gas
Fired
Dryer
in
Greenville
Plant



Aerial View of
Greenville, Miss.,
Plant of
Chicago Mill
and Lumber
Corporation,
in Which
Weatherboard Is
Manufactured



is developed in two large three-section furnaces automatically controlled. Practically complete combustion is effected. Hot gases and air are sucked out of the furnaces through insulated ducts into the dryer proper by large fans. This heated air is circulated and recirculated through the dryer by means of a system of thermostats and dampers until it is completely laden with moisture when it is discharged into the atmosphere. A period of three hours is required for the board to pass through the dryer. Approximately 170 tons of water is evaporated every 24 hours, and 600,000 cubic feet of gas is used daily.



A Nine-Foot Slab in Dyer County, Tennessee

Single Lane Pavements

By E. E. DUFFY

Portland Cement Association,
Chicago, Ill.

IN the olden days — away back when there were few if any automobiles on country roads—the rural highway was usually no more than wide enough for two slow moving vehicles to pass, 16 feet at a maximum. Later when automobiles came more into use, many of the early pavements laid on country roads were from 8 to 10 feet wide and full width pavements were 16 feet wide. In the course of time full width pavements were built in 18-foot widths. This width is widely accepted as a standard today, although many states are now constructing pavements 20 feet wide because of the extra safety factor.

It is not at all strange that the single lane pavement is again coming into its own. The matter of building roads is replete with problems, and one of the most important is that of making it possible for farmers to have year 'round outlets to market. Inasmuch as about three-quarters of all rural traffic is over the 7 per cent of highways roughly contained in the state systems, it was only natural that attention was first directed to these most used roads. But at the same time there are thousands and thousands of miles of rural roads which carry considerable local traffic, yet roads which do not warrant full width pavement. Various communities have discovered

Solving Farm-to-Market Road Problem by Building Hard-Surfaced Single Lane Pavements in Many Sections of the Country

that single lane pavements serve adequately where traffic is not heavy and where there is little through travel. By building these pavements from 8 to 10 feet wide, practically twice as much mileage can be obtained as would be possible if the pavements were built of full width. That is to say, many communities have determined that for local roads it is preferable to build 50 miles of single lane pavement rather than 25 miles of full width pavement.

2000 Miles of Single Lane Pavements in Service

THE TREND TOWARD single lane paving in rural communities is indicated by the fact that there are now more than 2000 miles of this type of pavement surface. Also various counties all over the country are laying plans to build considerably greater mileages within the near future. Illinois is the leading builder of single lane pavements with 750 miles now in service. Three counties, Vermillion, Champaign and Iroquois together have a total of 460 miles.

Single lane pavements have been quite popular in the South. The first recorded single lane pavements were built in three states in the same years, Ohio, Texas and Mississippi, in 1912 and 1913. A recent inspection of a single lane pavement built in Lee County, Mississippi, in 1913 revealed that the pavement is in excellent condition and has many years of service still ahead of it. Missouri has been a leading single lane pavement builder and now has some 420 miles, a great deal of which was built by the State Highway Department with the thought of widening as finances and traffic permitted. Matagorda county, Texas, is equipped with 50 miles of single lane pavement while Navarro county has some 24 miles. Mississippi has 64 miles. Many other counties in the Southern states have shorter mileages of this type of pavement and are considering expansion programs.

In 1929 Kent county, Maryland, adopted a \$900,000 bond issue to build 51 miles of single lane pavement. The citizens of that community have been so pleased that they are demanding more of these roads and indications are that the State Legislature will be asked to authorize an additional \$500,000 bond issue with which to build more of these pavements. Prior to 1929 there were

only 27 miles of single lane pavements in Maryland, but at the request of county officials the State Road Commission has made it possible for this type of pavement to be constructed in five counties; a total of 90 miles is now in service.

Provide Year-Round Roads

AT FIRST GLANCE it might appear that single lane pavements constitute only a half-hearted effort to serve local road needs, but in picturing the prime needs of local communities for year 'round travel to market, it can readily be seen that the single lane pavement performs that very necessary function.

The greatest value local roads have for the farmer is their ability to carry produce to market the year 'round, regardless of weather conditions. The hard surface single lane road, though it be but 8 or 10 feet wide, does just that. Usually single lane pavements are laid at one side of the center line of the roadway, with earth or gravel shoulders six feet wide on the other side. In some cases single lane pavements are being constructed down the middle of the roadway with narrow shoulders on each side. When constructed with the pavement on one side of the center line the pavement is usually placed on that side leading traffic to the

thought of widening them, many communities are using them as stage construction to serve until finances permit the extending of the pavement to full width. In Missouri the state highway department has been building mileages of single lane pavements on the main state highways with the thought of later widening these pavements. This has been found to be a highly desirable method of providing immediate relief for traffic on busy roads. In some cases rural communities have found that after a few years service traffic on single lane pavements has so increased that widening is necessary.

A recent query conducted in several communities where considerable mileages of single lane pavements are used revealed that only rarely do accidents occur. In the first place traffic is comparatively light. Motorists using these narrow travelways naturally drive more carefully, although speeds up to 45 miles per hour are safe when no other vehicles are near. Motorists slow down when approaching other vehicles so that they

may safely transfer to the shoulders.

Low First Cost and Low Upkeep Factors

NARROW PAVEMENTS carry with them the advantage of low first costs and low upkeep cost. The first cost is usually a trifle more than half the cost of a full width pavement, but of course the single lane pavement carries with it the same economy advantages that go with the wider pavement. Communities have found that the upkeep of the single lane pavements is low, probably running around \$100 per mile per year as compared with several hundred dollars per mile per year on less permanent types.

Merchants in Illinois communities point out that not only do the single lane pavements have a tremendous value to the farmer from the marketing standpoint, but also from the social standpoint. Farmers visit not only the nearby villages and towns more frequently but often visit county seats and large towns.



Left—A single track hard surfaced highway in Cass County, Texas. Note the well maintained roadway surface alongside the slab and the sodded shoulder.

Below—A nine-foot concrete single lane pavement in Mississippi County, Missouri. When traffic warrants it will be possible to build a similar lane so that the road will become a two lane highway

nearest trunk highway or the nearest market. In this way loaded vehicles have the right-of-way over other traffic. Where the pavement is built down the center of the roadway vehicles traveling in the opposite direction veer slightly to one side of the narrow pavement keeping two wheels on the pavement. Although this necessitates a slight slackening of speed it is certainly preferable to the muddy and rough conditions that might otherwise exist if there were no pavements.

While for the most part single lane pavements are being built as permanent roadways with no



The Rio Grande Valley

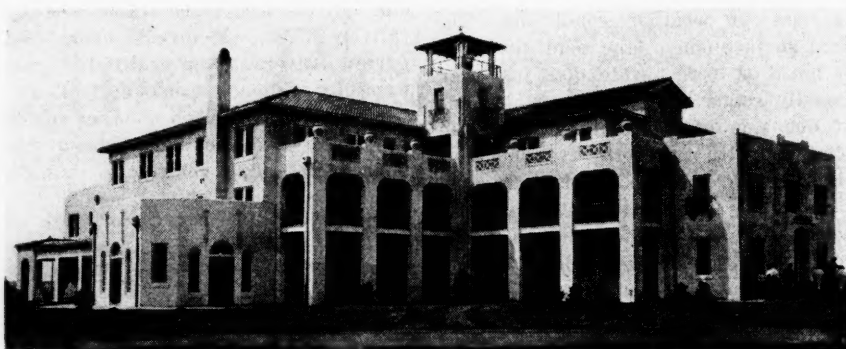
By RALPH G. BRAY, Editor of The Times, Mission, Texas

MOST of those things which went to make up the wild life of the country along the lower reaches of the Rio Grande were brushed into oblivion with almost one sweep of the historian's pen in 1910, when a powerful force of settlement surged into the valley that bears the name of the great international boundary stream. The first railroad was built into this area in 1904, and in time the possibilities for raising winter vegetables and citrus fruits, together with the climatic advantages, attracted an army of settlers.

In 1901 there was one bank in the valley with assets of \$162,000; today there are 34, with resources of over \$30,000,000. In 1910 there were hardly 40,000 people in Hidalgo, Cameron and Starr counties, which comprised the valley at that time; today there are nearly 200,000 in the area, which has seen a new county, Willacy, come into existence. Fifteen years ago there were practically no surfaced roads; today there are over 800 miles of paved highways. A dozen years ago irrigation methods were limited and inadequate; today dozens of great irrigation systems with hundreds of miles of concrete lined canals and supplemental underground concrete pipe systems approximate \$60,000,000, through a \$35,000,000 project now under way. Five years ago, there was one railroad serving the area; now, two large systems cover the valley with a network of rails. During the past 10 years, the power and light utility serving the area has increased its investment from less than \$1,000,000 to more

than \$8,000,000. Natural gas has been piped during the last few years to practically every community in the valley. In 1908 about 600 carloads of winter vegetables were shipped out; in the past season this rose to about 23,000. In 1922 about a dozen carloads of citrus were shipped out; at the close of the

orchards. Plantings have been increasing at the rate of about 1,000,000 trees a year, and possibly will continue to grow at this rate for the next two or three years. The ratio has been about 70 per cent grapefruit, 25 per cent oranges and 5 per cent tangerines, lemons and other citrus varieties. Ship-



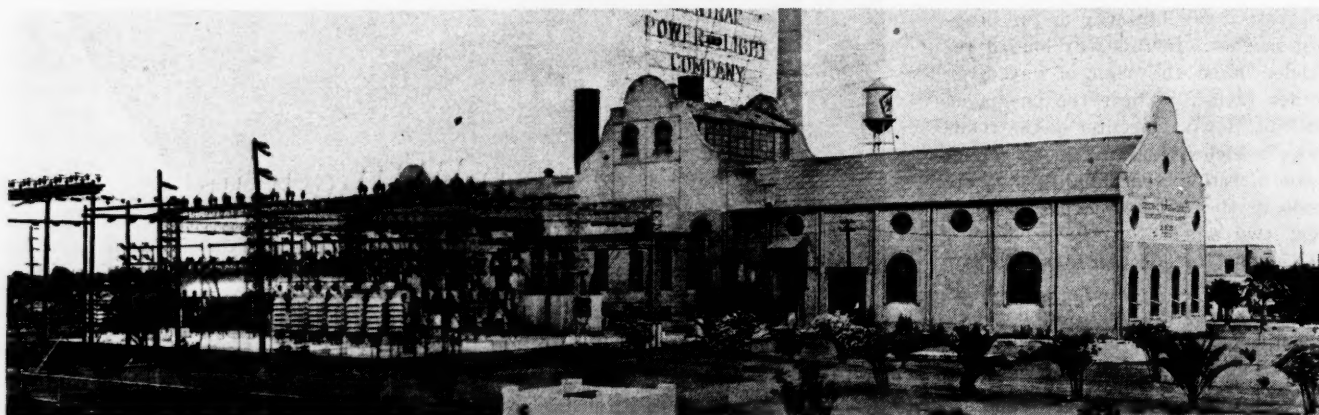
Club House of One of the Land Companies

last season this had jumped to nearly 5000 carloads, while the past decade has seen express shipments of fruit and truck climb from 267 to 3546 carloads. Above all, the country has paid from the soil for its modernization, and 1,000,000 acres of irrigable land are being developed, probably half this total being in cultivation.

Among the valley's rosier prospects is the citrus industry. According to the Federal census of July last year there were over 6,000,000 trees planted, which means that nearly 100,000 acres are in

ments may reach 25,000 cars for the season of 1932-33. Already upward of \$100,000,000 has been invested in the citrus industry in Hidalgo, Cameron and Willacy counties.

Apace with the citrus industry is the raising of winter truck. Much of the soil is well suited to the growing of cabbage, lettuce, carrots, beets, spinach, beans, tomatoes and onions, and fields of 100 acres or more are not uncommon. Because these vegetables can be produced from a month to two months ahead of many other sections of the

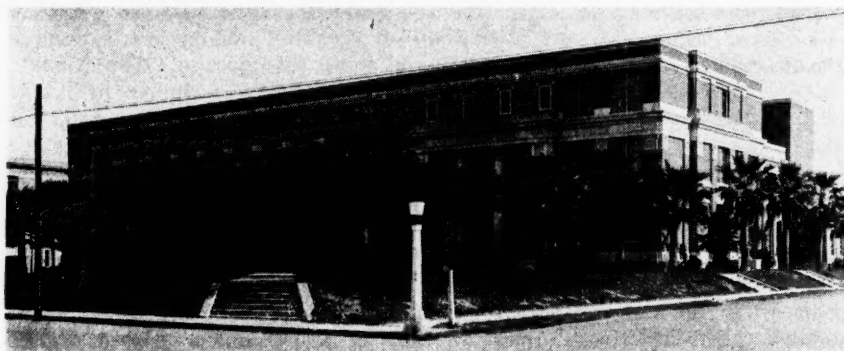


One of the Larger Power Stations of the Rio Grande Valley

country, there is usually a ready market in the North and every year sees a marked increase in the acreage of truck crops, with the advantage of two or three crops a year. For instance, tomatoes are produced in December and again in the spring, and so with beans, while other crops can be raised to advantage in early summer. Rich soil and application of water, when needed, assure heavy yields.

Thirty years ago, good land in the valley was obtainable at \$5 an acre, but now averages \$300, while citrus orchards run up \$1500 an acre, or even \$2500.

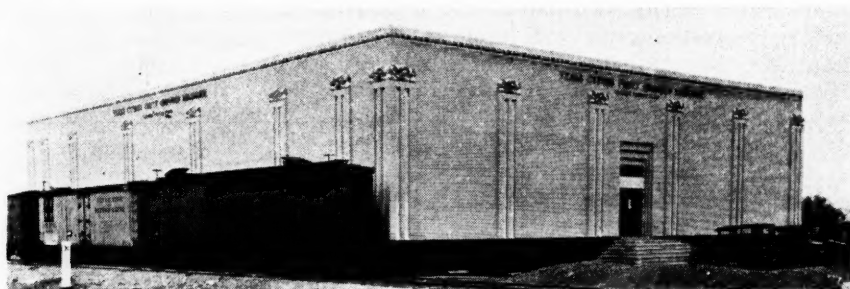
Display of
of
Bottled
Grapefruit
Juice



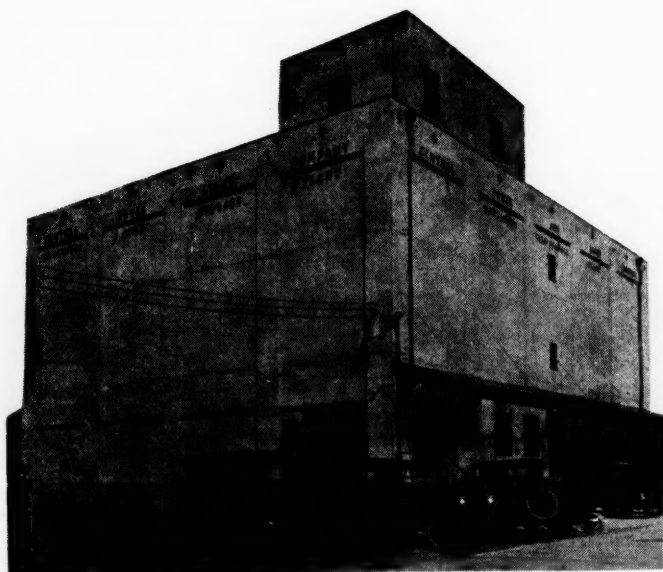
Typical Valley School Building

The quest for a profitable method of handling agricultural products has led to the development of canning and by-products, and many canning plants have been installed, while also, a company bottles grapefruit juice. The canning and juice plants utilize that part of the citrus crop which cannot be shipped as fresh fruit, because of off-size, color, over-ripeness, etc.

But despite tremendous development, there has been no boom in the valley. The people want none.



Packing Plant of Texas Fruit Growers Exchange



Harlingen
Cold
Storage
Plant
of the
Central
Light
and
Power
Company

Long freight hauls and a need for lower rates on perishables led to the movement for establishment of a deep-water port at Port Isabel, and resulted in the inclusion of a sufficient sum in the recent Rivers and Harbors act to assure it. This will be augmented by an additional deep waterway and turning basin at Brownsville, about 25 miles away, for which bonds already have been voted by the Brownsville navigation district. With ocean-going vessels calling at a valley port, affording cheaper transportation and opening new markets along the Atlantic seaboard and in Europe, a brighter era is seen.

especially as perishable freight will be handled in refrigerated ships. Extension of the Intracoastal canal from Corpus Christi to the mouth of the Rio Grande, also has been assured, thus linking this section with the great Mississippi system and permitting shipments of commodities by barge lines to the larger cities of the Middle West.

The railroads serving the area are exerting every effort to handle freight expeditiously and at reasonable charges and homeseekers and investors are encouraged to visit the valley at special reduced rates. Truck lines have not been slow in grasping the opportunities and great amounts of produce are transported even to points 1000 miles distant. Two new highways, one following the coast and the other following the Rio Grande to Laredo and thence north to San Antonio, are in course of construc-



A Three-year-old Orchard. Citrus Trees Grow Rapidly in the Valley

tion. For the building of highways there are large gravel and sand pits in the upper end of the area, which also supply building and construction enterprises and vast cement-lined irrigation canal projects and concrete pipe plants. Across the river, the Mexican Government is building a highway from Matamoros along the Rio Grande, paralleling the valley, and another highway south to Monterey, thence to Mexico City. Already a paved highway links this important industrial city with Laredo, 150 miles to the north.

The people of the Lower Rio Grande Valley are distinctly air-minded, as are their neighbors on the south. Two passenger and air mail lines enter the valley from the north, linking with trans-continental lines at San Antonio, while two important Mexican lines go south and west, affording quick service to Mexico City, and to Torreon, Mazatlan, and El Paso, connecting there with a line for Los Angeles.

Abundant available labor has been a vital factor in rapid growth of the entire valley.

Throughout the world depression, business in the valley has gone on much as usual. Improvement districts, formed for the purpose of bettering irrigation systems, are going forward to the tune of many millions of dollars. Building activities continue to the extent of more millions. Road projects call for expenditure of millions. In fact, the people are resolutely facing the future, strong in their faith in the valley and confirmed in their belief that the Nation is steadily going forward on an even keel.

\$35,000,000 Irrigation Projects

Brownsville, Tex.—An irrigation construction program now being carried out in the lower Rio Grande Valley of Texas will involve an expenditure of \$35,000,000 and bring the total acreage of irrigated land in the district to approximately 800,000 acres. In late years rapid strides have been made in irriga-

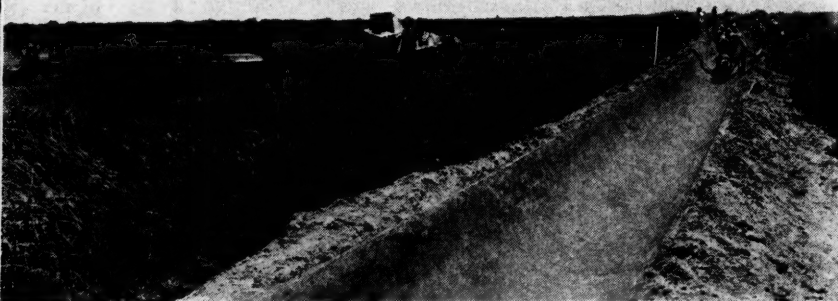
tion, the most marked development consisting of concreting canals and building systems which serve both as irrigation and drainage factors.

Two methods of lining the canals are being used, one the hand plaster method and the other the newer method of Guniting. Both have largely contributed to the rebuilding of practically all irrigation systems in the territory. The hand plaster concrete is put on to a thickness

of from 1½ to 2½ inches, while the Guniting lining is usually about 1 inch thick. The latter is put on by machinery, the cement and sand being mixed dry and then blown through a nozzle along with water, the mixture taking place in the nozzle and the resultant blown with considerable force onto the canal. This system has grown in popularity in the Rio Grande valley and at present both methods are being used.



Left—Main Concrete Canal Lined by the Hand Plaster Method. Below is Shown a Canal Which is Being Lined by Use of a Guniting Machine



\$7,000,000 Power Dam Dedicated

Arkansas Plant to Begin Operating July, 1931

ANOTHER major step toward materialization of the Arkansas Power & Light Company's plan for development of the 300,000 horsepower in potential energy represented by the water power of the Ouachita River, was marked by the dedication recently of the \$7,700,000 Carpenter dam near Hot Springs National Park, Ark. To be completed about July, 1931, the Carpenter plant, which will have an initial capacity of 56,000 kilowatts and an 84,000-kilowatt ultimate capacity, is the second of the three plants proposed under the original plan. The Rammel project, located 12 miles downstream from the Carpenter site, was completed several years ago and has since been supplying Arkansas power needs; the Blakely dam will be situated about 18 miles upstream from the Carpenter plant and will make available additional power to the extent of 100,000 kilowatt-amperes.

Designed by the engineering department of the Electric Bond and Share Co., the Carpenter hydro plant is what is known as a run-of-river plant; in other words, it is dependent on the stream flow of the Ouachita River to maintain its full operation. Construction is by the Phoenix Utility Co.; it was started in February, 1929, with establishment of the camp, and clearing and building the main line railroad. Excavation for the permanent structures started in April of the same year, and it is the present plan to place the first generator in service July 1, next, and the second one August 15. The plant will be tied-in with the Arkansas Power and Light transmission system, which is connected with those of the Louisiana Power & Light, Mississippi Power & Light and Memphis Power & Light companies. Among steam and hydro plants interconnected by this network is the 134,000 horsepower Sterlington plant located in the natural gas fields of North Louisiana.

Total length of the permanent structures of the Carpenter project, measured along the upstream side, is 1,164 feet, and the area of Lake Hamilton, the lake created by closing the dam gates, is 9,000 acres at flood stage. At this elevation the shore line of the lake is 375 miles with a maximum depth at the upstream face of the dam of 113 feet, and a capacity of 225,000 acre feet. Measured from the rock foundation to crest of

dam, the spillway section is 80 feet high, with a 34-foot bridge bringing the total height to 114 feet. This spillway, built of mass concrete with a straight face, gravity section, has a length, along the upstream face, of 448 feet. On the north, the mass concrete abutment seals the end of the power house headworks section, and on the south a bulkhead gravity section joins with the shore.

The spillway section is comprised of two divisions, the gate division and the trash chute section. The former is 430 feet long and contains 10 steel spillway gates, each 26 feet high and 34 feet wide; the latter is 28.5 feet in length, and has a crest 11 feet higher than the gate division. In addition to forming the barrier between the river and the power house, the headworks section of the power house contains the penstocks, or intakes, which carry the water to the turbines. These latter are to be direct connected with the generators. Length of this headworks section is 221 feet, the maximum width being 19 feet and the maximum height being 117 feet above rock foundation. At the intake end of each of the three penstocks a trash rack prevents logs and other debris from entering. A vertical gate also is here provided.

Situated adjacent to the headworks and on the downstream side is the power house section, 271 feet long and 73 feet wide. The foundation forms the major part of the power house permanent structures. Two 28,000-kilowatt generators are to be installed in the generator room; the transformer deck, a reinforced concrete structure 132 feet long and 29.5 feet wide, is adjacent to the power house section on the downstream side. Each assembly of power house and headworks forms an independent block from the rock foundation to the top of the deck. The draft tubes, two in each unit, are of reinforced concrete, and each is 22 feet 3 inches high and 20 feet 6 inches wide at the discharge end.

Excavation for the dam was handled by means of two gasoline-driven, crawler-type shovels of one cubic yard capacity. Where the volume of excavation justified it, an electrically driven Dayton Wiley Whirley, and gasoline-engine cranes and a steel guy derrick handled the rock-loaded scale pans from shovels to the narrow gauge dump cars. Com-

pressed air drills were used for drilling the rock previous to blasting. Concrete was made in Smith two-cubic yard, revolving type, electrically driven mixers, located in the central mixing plant. These dumped the concrete directly into a chute which carried the material to steel buckets resting on narrow gauge flat cars. The buckets were then hauled to the Whirley or crane derrick, and lifted and dumped into the forms. All concrete forms were made of wood and fabricated on the job. Draft tubes and panel forms for the spillway were fabricated and assembled on a large form building platform.

Around 200,000 barrels of Portland cement were required to provide the 175,000 to 200,000 cubic yards of concrete in the structure. Gravel and sand for the concrete were secured from a gravel bar a few miles away on the north shore of the Ouachita River. A one-cubic yard dragline loaded the raw gravel into four automobile trucks, each with a capacity of two cubic yards. Taken to the washing and screening plant and there graded into large gravel, fine gravel and sand, the material then was handled by the narrow gauge railroad to the sand and gravel storage bins adjacent to the concrete mixing plant. A narrow gauge railroad, 15,000 feet long, was especially constructed for this purpose. The 150 tons of reinforcing steel required for the structure was furnished by the Laclede Steel Co., St. Louis.

Unit Contract on \$3,250,000

Hospital

Benton, Ark.—General contract for the first unit of the new \$3,250,000 State Hospital for Nervous Diseases has been awarded by the Arkansas Construction Commission, Tom Davis, secretary, DeWitt, Ark., to William Peterson, Little Rock, at \$327,500. This unit will embrace 4 dormitories for patients, an assembly building and a building for kitchen and cafeteria. The structures will be of Colonial design, brick and concrete, with stone trim. Mann, Wanger & King, Little Rock, are the architects; Sullivan W. Jones, New York, consulting architect, and the Lund Engineering Co., Little Rock, engineer.

IRON, STEEL AND METAL MARKET

Steel Market Continues Dull

Pittsburgh, February 2—[Special.]—January brought disappointment to the steel trade, for while there was an increase in demand there was not as much as expected and there was no progressive improvement, the month closing with a rather dull market all around. Steel production is a close index to steel demand, for buyers specify shipments only against their immediate needs. January production of steel may be estimated at between 10 and 15 per cent over December, which is really more than the usual seasonal increase, in point of percentage, but when December production was so low such a percentage increase amounts to little in point of tonnage.

The January gain, however, may be regarded as sufficient to indicate that general business recession had ended in December but there is no adequate proof that general business has thus far started to recover. The majority of steel producers doubt whether business recovery will proceed fast enough to make much impress on steel during the next few months. Occasionally one talks publicly in sanguine vein but the language is carefully qualified. When conditions were so extremely poor in December it is very easy to believe that the worst has been passed.

Earnings reports of steel companies for fourth quarter are poor, but that was fully expected. The Steel Corporation's report shows earnings at \$23,083,791, 39 per cent under third quarter and 52 per cent under the average of the first two quarters of the year, and those two quarters ran only three-fourths of the 1929 average. While fourth quarter earnings as a whole were not particularly disappointing, there was a very bad feature in that December ran only \$4,190,958, which was less than two-fifths of October, and of course it is the December rate, not the average rate of the quarter, from which recovery must begin. The corporation earned only one-sixth of its common dividend in the quarter and apparently for the single month of December did not even earn its preferred dividend.

Jones & Laughlin Steel Corporation, the third largest independent (after Bethlehem and Republic) had total earnings, after taxes but before depreciation, of \$1,573,235 in fourth quarter, less than one-third of first or second quarter and less than one-fourth the 1929 average. In the quarter it earned only slightly more than one-fourth of its preferred

dividend. Monthly earnings are not shown but December was undoubtedly poorer than either of the other two months.

The steel industry has had three troubles. First, small tonnage in general. Second, low prices, so low in some cases that there would be no profit at all even with a fairly high operating rate. Third, higher costs through the low operating rate. The last named is an influence difficult to measure. Before the war the common view was that when a steel company had to operate at under 75 or 80 per cent its unit costs began to mount. Since the war the line of demarcation seems to have been considerably lower, perhaps around 50 per cent. At any rate the apparent earnings per ton of the Steel Corporation, with the diminishing operation last year, after February, decreased quite slowly through November, whereupon there was a big drop to December, earnings per ton of shipments being as nearly as can be estimated over \$11 in November but not much over \$6 in December. These are total earnings, out of which allowance must be made for depreciation and depletion, bond interest and sinking fund, before there can be anything even for the preferred dividend.

Thus the situation from the steel making viewpoint is a very poor one, nor is there prospect of its being made a great deal better in the next few months, for only a moderate increase in tonnage is to be expected and price advances are not likely to be numerous.

As an index of general business conditions, the steel showing is not so poor, for more than 1,700,000 net tons of finished steel was shipped from mills and every pound of it was undoubtedly consumed. A point to be remembered is that in the last few years steel capacity has increased more than requirements.

Building Up a Pig-Iron Backlog

Birmingham, Ala., February 2—[Special.]—Steady buying of pig iron in small lots with an occasional round tonnage is building up a fairly good backlog with the blast furnace interests and belief is strong that reduction of surplus will be seen shortly. Base price is firm, \$14, No. 2 foundry. Production of foundry is being held down though improvements on two furnaces are under way. Sloss-Sheffield Steel & Iron Company has its two city furnaces on foundry, Republic Steel Corporation has one on foundry

with the second being relined, the Woodward Iron Company has two making foundry while one of the steel companies is making a little foundry iron. The two North Birmingham furnaces of the Sloss-Sheffield Company can be brought into commission on short notice were market conditions to warrant.

There is still considerable iron due to Eastern and Mid-Western melters and the low freight rates by rail and water to Atlantic coast ports will remain in effect until next October at least. While there exists some prejudice against Southern irons, recent demonstrations emphasize that pig iron of this section is proving adaptable in many directions. Some of the larger melters of the country are consumers of Southern iron and continued selling to them is proposed.

Blowing in of additional blast furnaces has brought about necessity for a little increase in production of ore and coal as well as coke. Foundry iron producers are confident the probable make of the first three months of 1931 will be absorbed before the period is half over, meaning that surplus iron will come in for attention.

In steel circles there is indication that February will see increased production in ingots and in finished products or shapes. Reinforcing concrete bars in particular are being produced on a better scale. Structural fabricating shops are still receiving many small tonnage contracts which are accumulating well though being rushed out as needed. Ingalls Iron Works Company is starting work on the fabrication of steel for 10 barges for the Mississippi-Warrior Service, Inland Waterways Corporation, also steel for the underpasses through two streets in the heart of the city in elimination of grade crossings and also a fairly good sized tonnage for the State house in Louisiana. Other contracts are on hand with this company and the announcement is that additional men will be employed during this month to carry out some contracts.

Portland cement manufacturers of the district have been booking orders right along, 3,500,000 barrels approximately to be used in Louisiana and already 30,000 barrels being ordered by Alabama for highway development. Shipments will start 60 to 90 days hence by which time there will be warrant for increasing production. Two mills of this city, Alpha Portland Cement Co. and Lehigh Portland Cement Co. had no lost-time accident in 1930 and will receive awards from the Portland Cement Association.

The coal industry shows no improvement. The larger consumers, railroads, are still lagging in their requirements.

Woodward Iron Company went through 1930 without a single fatality in its coal mines, producing more than 908,000 tons of coal.

The coke market is showing slight improvement, the home consumption being better. Scrap iron and steel continues slow.

PIG IRON QUOTATIONS

No. 2 foundry, 1.75 to 2.25 per cent silicon, \$14.00; No. 1 foundry, 2.25 to 2.75 per cent silicon, \$14.50; iron of 2.75 to 3.25 per cent silicon, \$15.00; iron of 3.25 to 3.75 per cent silicon, \$15.50.

OLD MATERIAL

Steel rails	\$11.00 to \$12.00
Steel axles	14.00 to 14.50
Iron axles	14.50 to 15.50
Heavy melting steel.....	9.50 to 11.00
No. 1 cast.....	10.00 to 10.50
Stove plate	8.50 to 9.50
No. 1 railroad wrought.....	9.50 to 10.00
Car wheels	10.00 to 11.00
Tramcar wheels	10.50 to 11.50
Machine turnings	7.50 to 8.00
Cast-iron borings	7.50 to 8.00
Cast-iron borings (chem.)...	12.50 to 13.00
Rails for re-rolling.....	11.25 to 11.75

Quietness Rules the Metals Though Producers Are Hopeful

New York, February 2—[Special.]—Very little change in metal prices has taken place over the week. Business generally has been quiet, but metal producers are a bit more hopeful. Zinc is the only major metal to improve in price, selling at the close of the week at about 4.07½c per pound, East St. Louis, for prompt delivery, as against 4c at the beginning.

Copper prices declined slightly when considerable second hand metal became available at 9¾c per pound. Antimony dropped to 7¼c per pound, duty paid, as against 7¾c. Lead was unchanged in price here though London prices were falling gradually. Tin has fluctuated aimlessly around 26 cents as a pivotal quotation.

Silver has been oscillating within a narrow margin, or between 29 and 30c per ounce, which is fully one cent above the low point of recent months. Quicksilver is nominally \$105 per flask of 76 pounds, New York, but western miners complain that \$96 is all that they are able to secure and therefore call the official New York quotation a fictitious one. Demand for quicksilver is merely in small jobbing lots and not in wholesale quantities.

Industrial conditions improve slowly. The steel industry works at 47 per cent of capacity, a gain of one point in a week. The improvement is a little less than seasonal for a January. It is predicted that production of automobiles

and trucks in the United States and Canada during February will have been 200,000 units, or an increase by 25,000 over the estimated outturn of January. Residential building construction is improving though public utility expansion is a disappointment. The Federal Government is building several post office buildings, which will consume fair tonnages of metals in plumbing, grill work, etc.

More metal producers are organizing trade associations to promote the use of their metals. Thus the sterling silver manufacturers have formed such an organization. The Lead Industries Association is publishing a monthly bulletin, somewhat modeled after that which has been published for several years by the Copper and Brass Research Association.

The exact price status in the copper market has often been difficult to determine. It has been certain that so-called second hands, or brokers and dealers, have been offering at 9¾c, which represents a cut of ¼c. The question in dispute is whether custom smelters, a certain class of producers, have been meeting this price. Primary producers, or those companies who own their ore supplies, have been out of the market these many weeks.

Some custom smelters—and there are no more than a half dozen—maintain that good export sales this month have been sufficient to absorb their output; that they have been bid 9¾c but have refused to sell at that figure. During the past few days, however, export sales have been much lower than for the preceding week, ranging of late from 250 to 300 tons daily as against 3500 tons on one day of the preceding week.

Sales of zinc have been better perhaps than the small advance in prices might indicate. For the past week the aggregate of sales is estimated at 6000 tons

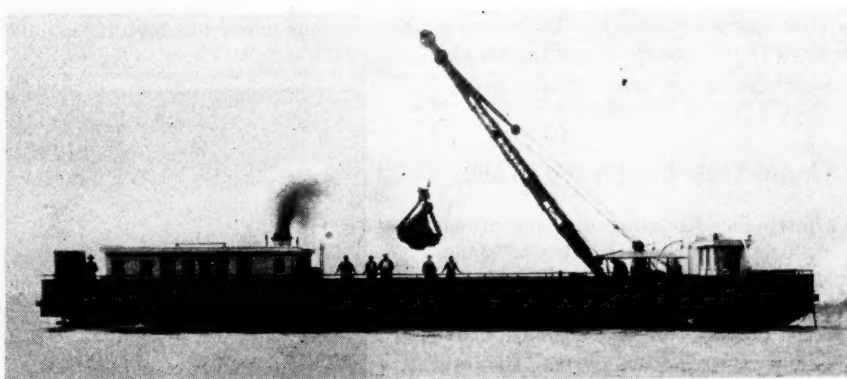
as against 3000 tons for the preceding week. The ore situation in the tri-State district is better. There has been a deadlock between ore buyers and sellers in the Oklahoma-Kansas-Missouri area for about four weeks but the sellers are beginning to win out. In other words, buyers have not secured all the ore they wanted at \$26 and have been forced to pay \$27 for at least a third of the tonnage bought recently.

Lead is the one metal which hovers around the low levels for the past several years, but this is probably because lead prices were adjusted to lower levels in line with commodities in general at a much later date than other metals. Daily reports concerning the lead market have been that conditions were very quiet but when the week's sales were compiled an average business was discovered. Prices are still 4.75c per pound, New York, and 4.55c, East St. Louis.

On Thursday tin sagged to 25¼c per pound, the lowest in several days, but the average price over the week has been 26 cents. Purchasing of tin has been extremely light. The government of the Federated Malay States is yet to approve the scheme for restricting exports, agreement having been given by the governments of the other tin producing countries of Bolivia, Nigeria and Dutch East Indies.

Architects Elect Officers

The Baltimore Chapter of the American Institute of Architects, at its annual meeting, elected the following officers: H. S. T. White, Sr., president; John H. Scarff, vice-president; Charles Dana Loomis, secretary; William H. Emory, Jr., treasurer, and Parke P. Flournoy, Jr., executive committeeman.



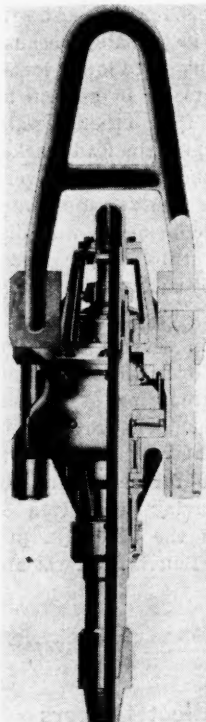
All steel self-propelling clamshell bucket dredge. Built by Maddox Foundry & Machine Co., Archer, Fla., for Bermudez Brothers of Havana, and used for reclaiming sand in water 100 feet deep.

NEW AND IMPROVED EQUIPMENT

Timken-Equipped Oil Well

Swivel

A new Timken-equipped oil well swivel, type B, has been developed by the Gray Tool Company, Houston, Tex. It is designed for particularly heavy duty, having a load capacity of 422,000 pounds at 100 rpm. The entire suspension consists of alloy steel forgings, with a 3-inch wash pipe of hardened and ground tool steel, while the method of suspension is an important characteristic of the swivel. This consists of a ball pinned to the tops of two heavy members that extend the length of the swivel body, the ball proper being braced by a cross member which adds strength and permits lighter construction. Advantages claimed for this construction are: It provides a straight pull on the swivel, equalizing the load on the bearings; the weight of the swivel and pipe, carried below the point where the ball is connected to the rods, tends to hang straight. The rotating member is carried on two Timken bearings and one straight roller bearing, space around the bearings providing an ample reservoir for lubricant storage. Lubricant is retained in the swivel by packing glands.

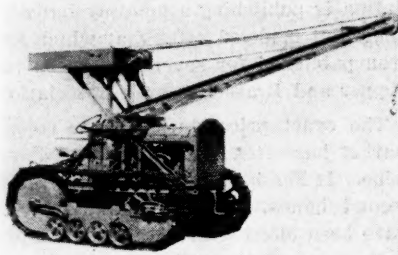


Embodies Strength and Simplicity

Crane Unit for Heavy Work

The Hughes-Keenan roustabout crane, made by the Hughes-Keenan Co., Mansfield, Ohio, has been adapted to the model GU Trackson Allis-Chalmers industrial crawler tractor for spotting, lifting and transporting heavy weights. The combination provides compact, flexible and easily operated crane unit suitable for a variety of uses in and around industrial plants. Its portability is an outstanding advantage, enabling it to go

wherever needed and contributing to speed and economy in operation and reduction in costs. Model GU Trackson crawler is built by the Trackson Company, Milwaukee, Wis., for the Allis-Chalmers industrial tractor and is specially adapted to the operation of auxiliary equipment, such as the Hughes-Keenan roustabout crane, which has a full revolving boom and swings on a ball



Hughes-Keenan Roustabout on Trackson Allis-Chalmers Crawler Tractor

bearing turntable, on which the counterweight box is mounted. The boom may be raised or lowered by power, while the load may also be raised or lowered without moving the boom. The operator has a clear view at all times.

Synchronous Motors

For starting under load, the adaptability of the salient pole synchronous motor to certain low speeds in addition to high efficiency and excellent power factor characteristics, has established it as a desirable type of motor for these drives, according to the Westinghouse Electric and Manufacturing Co. But as driven machines often must be started under load, a stated objection to the synchronous motor has been its inability

An Attachment for Surfacers

A grinding, jointing and setting attachment for surfacers has been designed and patented by the engineering department of the J. A. Fay & Egan Company, Cincinnati, Ohio. The three units are separate, each operating on the same saddle bar, the grinder being supported by the saddle slide bar and a rigid solid bar and suspended between the two; it is driven by an individual motor, built-in, with current supplied by an ordinary lamp socket cord.

The jointer consists of a slide bar and a saddle for holding an emery stick, the bar being of rigid construction, with a broad face and dovetailed to carry the sliding saddle containing the emery stone for jointing. The saddle is moved along the bar by a screw which insures steady motion to the jointing operation as it passes over the cutter. Direction of the jointing stone is also operated by a screw having a knurled hand wheel. Setting of knives is accomplished by clamping two brackets on the saddle bar, each with a hardened disc turning on pivots, the periphery discs indicating the cutting circle.

to develop necessary starting and pull-in torques without incurring excessive current inrush or the use of an intermediate starting device. To supply an efficient and mechanically simple motor of this type, the company has developed the Simplex motor with starting and accelerating characteristics similar to a wound rotor induction motor, obtained without sacrificing running performance. Both motor and controller are designed for operating in very dusty locations. Several installations were made during the past year.



Adaptable to Low Speed Drives

CONSTRUCTION DEPARTMENT and NEW ENTERPRISES

Covering the initial announcements of new undertakings with additional information about enterprises previously mentioned. The date at the end of an item indicates preliminary facts were given in a previous issue.

When writing to a new firm or corporation the name of at least one of the incorporators should be placed on the envelope to expedite its handling by the local postoffice. Mail may be delayed unless complete address is given.

Building and Construction Proposed and Contracts Awarded; Manufacturing, Mining, Power, and Land Developments; Public Works; Transportation; Communication; Financial Enterprises; New Business Opportunities Reported in the Sixteen Southern States.

The Daily Construction Bulletin of the Manufacturers Record gives each business day advance news published in this weekly review. It is invaluable to those requiring prompt information. Subscription price \$40.00 a year.

Airports, Airplane Plants, Etc.

Ky., Lexington—William B. Loughbridge, and associates, reported, negotiating for 154 acres on Bates Creek pike for client for airport.

La., Shreveport—War Dept., Washington, D. C., receives bids March 5 for construction of quartermaster's warehouse, maintenance department warehouse and garage building to be erected at Barksdale Field; total cost \$100,000. 11-27

Okla., Oklahoma City—Sherman Machine & Iron Works, 18 E. Main St., has contract at \$15,000 for water supply system for airport; will construct deep well; install pump house and distribution system. 1-15

Tex., Fort Worth—City, receives bids Feb. 3 for aero repair shop at airport; 206 ft. long, 80 ft. wide; cost \$31,000; struc. steel frame; tile and stucco walls; D. L. Lewis, City Engr.; C. Milo Thelin, Res. Engr.

Tex., Mercedes—City, reported, soon begin work of clearing site for airport.

Va., Hopewell—Swanson Aircraft Co., Inc., Swen Swanson, Pres., will install woodworking machinery, lathe, grinders, etc., for 2 passenger cabin monoplane plant, Poythress and Randolph Sts.; later may erect new plant. See Want Section—Machinery and Supplies.

Va., Langley Field, Hampton—Office of Constr. Q. M., Fort Monroe, receives bids Feb. 17 for sewerage disposal plant Langley Field. See Want Section—Bids Asked.

Bridges, Culverts and Viaducts

Proposed Construction

D. C., Washington—District Comms., Engineering Dept., Roland M. Brennan, Ch. Clk., Dist. Bldg., opens bids Mar. 2 for \$500,000 bridge, Klinge Valley, over Rock Creek Park, Connecticut Ave. near zoo.

Fla., St. Petersburg—See Miscellaneous Construction.

Kentucky—State Highway Dept. receives bids for 3 bridges. See Roads, Streets and Paving.

Md., Baltimore—City, H. L. Lucke, Bridge Engr., opens bids Feb. 11 for \$150,000 bridge, Beckleysville; conc. and struc. steel.

Mississippi—State Highway Comsn., Gus A. Draper, Engineer, Jackson, opens bids Feb. 11 for 0.661 mi. bridge over Leaf River and grading approaches, Jones County, F. A. 207-C.

Mississippi—State Highway Comsn., Gus A. Draper, Engr., Jackson, opens bids Feb. 11 for 4 conc. bridges between Hickory, Chunky and Newton, 1263 cu. yd. conc., 235,755 lb. rein. steel.

Tennessee—State Dept. of Highways and Public Works receives bids for 4 bridges. See Roads, Streets and Paving.

Texas—State Highway Comsn. plans 2 bridge projects. See Roads, Streets and Paving.

Texas—State Highway Comsn., G. G. Wickline, Bridge Engr., Austin, authorized building \$185,000 bridge over Brazos River, Highway 10, Hood County.

Tex., Houston—Harris County Engineering Dept., Chas. R. Haile, County Engr., opens bids Feb. 9 for 454-ft. creosoted pile bridge over Tabbs Bay from mainland at Poll to Hogg Island; conc. deck or creosote deck with asphalt plank flooring.

Tex., New Braunfels—City, Hilmar Fischer, Mayor, plans \$35,000 bridge over Comal River leading to Warnecke Camp; Terrell Bartlett Engineers, Engr., Smith-Young Tower Bldg., San Antonio.

Virginia—State Dept. of Highways has low bids for 7 bridges. See Roads, Streets and Paving.

Va., Alexandria—Arlington County, C. L. Kinnler, County Engr., Courthouse, Rosslyn, opens bids Feb. 14 for bridge at Four Mile Run, Mount Vernon Ave.; city to share cost. 1-15

Contracts Awarded

La., New Orleans—U. S. Engr. Office, First New Orleans Dist., 4400 Dauphine St., let contract for railway bridge, Bayou Sale; Substructure, Sole Contracting Co., Pensacola, Fla.; superstructure, Petroleum Iron Works Co., Island Park, Beaumont, Tex. 12-11

Canning and Packing Plants

Florida—Indian River Fisheries, Inc., Henry H. Guerin, Pres., Sebastian, contemplates opening 4 stores to handle frozen food products, in Miami, Palm Beach, Jacksonville and Orlando. See Want Section—Miscellaneous and Machinery and Supplies.

Fla., Tampa—The Borden Co., 350 Madison Ave., New York, reported, plans establishing frozen citrus juice plant at Union Terminals; project, costing \$100,000, will be operated by Borden's Farm Products Co., Inc., a subsidiary; leased 10,000 sq. ft. floor space; let contract to Skinner Machinery Co., Dunedin, for juice extractor and other equipment; in addition to juice plant, company will install manufacturing plant for half pint paraffined paper cone containers; install machines to cut paper, shape, assemble, sterilize and seal cones.

Tex., Farmersville—Chamber of Commerce, reported, interested in establishment of canning plant.

Clayworking Plants

Ala., Birmingham—Vulcan Tile & Brick Co., 2103 First Ave., N., reported, acquired by National Fireproofing Co., Fulton Bldg., Pittsburgh, Pa.

Coal Mines and Coke Ovens

Kentucky—Old Ben Coal Corp., D. W. Buchanan, Pres., 232 S. Clark St., Chicago, Ill., reported, acquired controlling interest in Elkhorn Coal Co., 67 Wall St., New York, operating in Kentucky.

Cotton Compresses and Gins

Ga., Savannah—Floyd & Co., W. Boundary St., begun construction of cotton pickery on 4½ acre site at Industrial City Gardens; erect 6 buildings.

Drainage, Dredging and Irrigation

Ala., Mobile—U. S. Engr. Office has low bids for dredging channel connecting Mobile Bay and Mississippi Sound and in Mobile Bay to New Orleans Intracoastal Waterway Canal: Sec. 1, Jahncke Service, Inc., 814 Howard Ave., New Orleans, La., \$90,420; Sec. 2, John Jacobson, 2311½ Ave. C, Galveston, Tex., \$35,000; Sec. 1 and 2 combined, John Jacobson, \$129,976. 1-8

Florida—U. S. Engr. Office, Montgomery, Ala., let contract to W. Horace Williams Co., Inc., 833 Howard Ave., New Orleans, La., at \$7200, for dredging, Choctawhatchee Bay, Fla. 1-29

Florida—U. S. Engr. Office, Jacksonville, has low bid from Reliable Dredging Co., Inc., Jacksonville, at \$93,350, for dredging approx. 730,000 cu. yd. material, place measurement, St. Johns River, vicinity Dames Point. 1-1

Fla., Jacksonville—U. S. Engr. Office opens bids Feb. 19 for dredging approx. 838,000 cu. yd. material other than rock and 113,000 cu. yd. rock, Biscayne Bay Section, Intracoastal Waterway, Jacksonville to Miami.

Fla., Miami—U. S. Engr. Office, Jacksonville, has low bid from Central Dredging Co., 307 N. Michigan Ave., Chicago, Ill., for dredging 137,000 cu. yd. soft material and 274,000 cu. yd. rock, Miami Harbor. 1-8

La., Arnaudville—Bd. of Comms. of Arnaudville Gravity Drainage Dist. No. 17, St. Landry and St. Martin Parishes receives bids Mar. 4 for constructing gravity drainage system, involving removing approx. 2,000,000 cu. yd. of earth; M. J. Goudeau, Jr., Engr., Opelousas.

Md., Baltimore—U. S. Engr. Office, Customhouse, let contracts for dredging: 2,749,778 cu. yd., Riverview anchorage, Arundel Corp., Pier 2, Pratt St., \$406,967; Clifton-Brewerton Angle, 1,714,606 cu. yd., Arundel Corp., 18.5 cents; 297,200 cu. yd., Wicomco River, Md., Arundel Corp., \$68,029; 1,452,410 cu. yd., Curtis Bay, Arundel Corp., \$235,290. 1-22

Miss., Biloxi—City, J. J. Kennedy, Mayor, votes Feb. 17 on \$50,000 bonds for dredging 12-ft. channel into city and constructing docks.

South Carolina—U. S. Engr. Office, Charleston, rejected bids for dredging in Waccamaw River. 1-22

South Carolina—U. S. Engr. Office, Charleston, let contract to P. Sanford Ross, Jersey City, N. J., for dredging 69,391 cu. yd., 13 ft. deep, Shipyard River, at 27.37 cents per cu. yd. 1-22

Tex., Texas City—U. S. Engr. Office, Galveston, let contract to Atlantic, Gulf & Pacific Co., 15 Park Row, New York, at \$70,115, for 1,046,000 cu. yd. dredging. 1-22

Virginia—U. S. Engr. Office, Navy Bldg., has low bid from Lukeas Dredging & Contracting Co., Snow Bldg., Baltimore, at 31.2 cents per cu. yd., for dredging 133,675 cu. yd. Rappahannock River.

Virginia—U. S. Engr. Office, Norfolk, let contracts for dredging: 700,000 cu. yd., Harrison Bar, Standard Dredging Co., 233 Broadway, New York; Swan Point, 1,000,000 cu. yd., Delaware Dredging Co., 139 S. Third St., Philadelphia, Pa. 1-22

Electric Light and Power

Electric light and power work in connection with many LAND DEVELOPMENT operations involves the expenditure of large sums of money. See that classification for details.

Ark., Gravette—Benton County Utilities Corp., construct electric line from Gravette to Maysville.

Arkansas—Arkansas Power and Light Co., Pine Bluff, advises plan building 110 kv. transmission line to connect hydro-electric plant now under construction with rest of system; lines to be completed about Sept. 1; are completing large dam at Hot Springs having total capacity of 60,000 h.p. and costing about \$7,500,000.

Georgia—Georgia Power Co., Electric Bldg., Atlanta, John R. Marsh, Mgr., Public Relations Dept., advises practically all of company's construction work during 1931 will be done by Allied Engineers, Inc., which is the construction force for Georgia Power Co. and other associated companies; work will be almost entirely that of improving and strengthening transmission and distribution systems, and purchase of new equipment will be carried on continuously throughout the year as needed. 1-22

Kentucky—Middle West Utilities Co., 20 N. Wacker Drive, Chicago, Ill., reported, 1931 construction budget provides for expenditure of \$63,000,000, of which it is estimated \$6,000,000 will be carried over into next year; company controls Kentucky Utilities Co., Louisville, and Kentucky Power and Light Co., 100 W. Monroe St., Chicago, Ill.

Maryland—Eastern Shore Public Service Co., Salisbury, acquired Maryland Light & Power Co., subsidiary of Empire Public Service Co., 1600 Arch St., Philadelphia, Pa.; purchase, subject to approval of Public Service Comsn., Baltimore, Md., gives control of practically all power companies on Eastern Shore with exception of municipally owned plants at Chestertown, St. Michael's, Easton, Centerville and Berlin.

Mo., Carthersville—City plans \$180,000 power and light plant; Russell & Axon, Engrs., 6200 Easton Ave., St. Louis. 1-22

S. C., Hardeeville—Town granted 30 yr. electric light franchise to Ray R. Smith.

S. C., Orangeburg—Bates Hill Electric Co., incorporated; T. B. Fersner, J. M. Owens.

Tennessee—Tennessee Electric Power Co., Chattanooga, J. C. Guild, Jr., V. P. and Gen. Mgr., construction budget for 1931 will amount to approximately \$4,500,000; of this amount \$3,750,000 is for light and power departments, about \$750,000 for improvements in the Chattanooga area and about \$900,000 for Nashville district of the company; no new power projects or major transmission lines are contemplated in 1931. 12-18

Tenn., Memphis—Memphis Power & Light Co. will soon call for bids for steel towers in connection with high tension river crossing over Mississippi River; Virginia Bridge & Iron Co., White St., have just filled order for 21 tons of steel work to be used in anchorage for transmission line river crossing; Woods Brothers Construction Co., Lincoln, Neb., lately noted having contract for anchorage blocks and tower foundations; no other contract let; Phoenix Utility Co., P. O. Box 59, is constructing the line. 12-25

Tenn., Roan Mountain—East Tennessee Light & Power Co., Bristol, Tenn.-Va., reported, granted permission by State Railroad and Public Utilities Comsn., Nashville, to acquire electric distribution system serving Roan Mountain.

Tex., McAllen—City voted negatively on proposal for establishment of municipal light plant. 12-25

Va., Natural Bridge—Natural Bridge, Inc., Oliver J. Sands, V. P., will install night lighting, set to symphonic music; equipment of modern type will be installed by Western Electric Co. and Graybar Co., both 420 Lexington Ave., New York. 11-27

Va., Radford—Appalachian Electric Power Co., Roanoke, reported, will have hearing Feb. 16 before Federal Power Comsn. Washington, D. C. for license to construct \$11,000,000 plant on New River near Radford.

Fertilizer Plants

Alabama—W. D. Jordan, Senator, introduced in State Legislature, Montgomery, bill authorizing State to form corporation for purchase or construction of nitrate plant; corporation will have authority to issue \$20,000,000 bonds.

Flour, Feed and Meal Mills

Tex., Cibola—Cibola Grain Co., incorporated; Edward Pfeil.

Tex., Dallas—Burrus Panhandle Elevators, capital \$200,000, incorporated; J. Perry Burrus, 2701 Alamo St.

Foundry and Machine Plants

Mo., Kansas City—Mathews Machine Works, Inc., capital \$25,000, incorporated; Hugh Matthews, 433 W. Fifth St.

Mo., St. Louis—J. B. Killian, 3115 Neosho St., and associates, reported, organized Railway Safety Derailment Control, Inc., capital \$200,000; manufacture patented railroad equipment and devices.

S. C., Greenville—Southeastern Machine Co., 693 Humphries St., S. W., Atlanta, Ga., with local plant for manufacture of textile machinery and Greenville Spindle & Flyer Co., Camp Sevier, reported, plans enlargement of Greenville plant, including department for remodeling and repairs to textile machinery.

Tex., Lufkin—Lufkin Gin Co. increased capital \$100,000 to \$125,000.

Garages and Filling Stations

Ala., Troy—Standard Oil Co., will erect \$15,000 super service station North Three Notch St.; brick and stucco; 88x60 ft.; E. E. Roberts, Constr. Foreman, 801 Sixth Ave., Birmingham.

Fla., Ocala—Mrs. W. B. Johnson, Washington and Main Sts., erecting 1 story, 102x119 ft., service station and auto sales building; excavation begun; cost \$23,000; John Thomson, Contr., Malaver Bldg.

Ga., Atlanta—Following additional bidders estimating on master service station, Peachtree and Baker Sts., for Goodrich Silvertown, Inc.: Norwood Griffin Co., Bona Allen Bldg., and J. F. Higdon, Silver Bldg., The Flagler Co., Red Rock Bldg., all Atlanta; bids opened Feb. 10. 1-29

Fla., Orlando—Harmon-Keen Motors, Inc., capital \$20,000, incorporated; R. L. Harmon, 525 E. Church St.

Ky., Paducah—Motor Service Co., capital \$25,000, incorporated; M. H. Cornillaud.

Md., Baltimore—Northern Motor Co., Inc., 3949 Falls Rd., incorporated; Martin R. Myers, 3937 Falls Road.

Md., Baltimore—W. W. Neal, care of Wm. T. Tippet, 111 N. Charles St., plans gasoline filling station, Edmondson Ave. near Swan Ave.

Mo., St. Louis—The Texas Co., 2414 DeKalb St., lessee, reported, will occupy building 5021 Bircher Kingshighway, 1500 N. Grand Blvd. and 1604 S. Thirty-ninth St., to be erected by Fischman & Harris, Inc., 629 Chestnut St.

Mo., St. Louis—B. F. Goodrich Rubber Co., 3435 Chouteau St., reported, let contract to The Austin Co., Arcade Bldg., for service station N. W. Cor. 23rd and Olive St.

Mo., University City, St. Louis—Meyer Garage, Inc., chartered; Leo A. Meyer, 2432 Potomac St.

S. C., Columbia—Standard Oil Co. of New Jersey, 700 Pendleton St., reported, purchased site N. W. cor. Marion and Gervais St.; erect service station.

Tex., Van Horn—Dees Motor Co., incorporated; W. J. Dees, J. F. Provine.

Va., Roanoke—River Jack Filling Station and Pavilion, Inc., River Jack, R. F. D. 2, Roanoke, capital \$25,000, incorporated; C. M. Ellis, 107 First St., N. W., Roanoke.

Gas and Oil Enterprises

Ga., Columbus—Southern Natural Gas Corp., Watts Bldg., Birmingham, advises in order to supply natural gas to Columbus, it will be necessary to either cross the Chattahoochee River on bridge or lay line on bottom of river; present expectation is to utilize the bridge; work will involve construction of several miles of 12-in. line and will necessitate expenditure of approximately \$50,000; engineers in charge will be those attached to the Southern Natural Gas Corp. organization; no contract has been awarded for material; change from manufactured to natural gas will involve expenditure of approximately \$175,000 on part of owners of local distribution system. 1-29

Ky., Barbourville—Rock Creek Oil and Gas Co., reported, soon begin construction of 40 mile gas pipe line to extend from Sunbright pool to Rockwood, Harriman, Oakdals and Kingston, Tenn.

Ky., Owensboro—Bader Oil Co., capital \$16,000, incorporated; J. M. Murphy, S. R. Berry.

Louisiana—Southwestern Gas & Electric Co., Marshall Bldg., Shreveport, reported, plans expenditure of \$2,000,000 in extensions and improvements in 1931; work includes new transmission lines, 2 office buildings, generating station improvements, extension of service to Texas oil fields and city distribution work to include underground loop, manholes, ducts, vaults constructed, etc.; new distribution systems will be installed in Avinger and Maud, Tex., and additions to existing systems in other communities; 11 miles of large conductor high voltage line will be built from Huntington, Ark., to Oklahoma state line to interconnect with Public Service Co. of Oklahoma, Tulsa, Oklahoma, 33,000 volt line from Marshall to Carthage will be re-routed; work to be completed in October to allow for highway changes; provision also made to serve Henderson and Kilgore oil fields; rural electrification in Arkansas and Texas will also be under way; complete city water project at Nashville, Ark.; complete 2 gas distribution systems on Mississippi coast and sub station of 1000 kv-a. capacity at Grand Saline, Tex., will be completed.

La., Shreveport—Arkansas Fuel Oil Co., Ardis Bldg., reported, construct 3 miles of 6-in. pipe line from Gregg County, Tex.; construct 40 car loading rack; transport oil by tank cars to Shreveport.

Miss., Hattiesburg—City voted transfer of natural gas franchise to Herbert Gillis, 608 John St., M. L. Waggoner and N. E. Harman, Trustees; Frank McGee, Dallas, Tex., and R. B. Dudley, Jackson; negotiating for transfer of franchise. 1-8

Mo., Plattsburg—Plattsburg Gas & Service Co., incorporated; Nelson H. Poe, 5808 Rockhill Rd., Kansas City.

Mo., St. Louis—Power Oil Corp., incorporated; James O. Sampson, 501 Donne St.

Okla., Erick—City votes Feb. 17 on \$50,000 bonds for natural gas system.

Okla., Tonkawa—Morgan Oil Co., Ponca City, reported, acquired oil refinery of Tonkawa Refining Co.; plans improvements; operate as branch plant.

Mo., Springfield—Springfield Gas & Electric Co., reported, plans beginning of 5 yr. extension program to include covering entire city with gas mains and suburban districts adjoining; extend electric lines; estimated cost \$700,000.

Tenn., Chattanooga—Lookout Oil and Refining Co., subsidiary of Armour & Co., 1400 Cowart St., reported, plans \$90,000 improvements to plant at Alton Park; will install high-temperature deodorizers for finishing oils or shortening and graining tanks for solid oil.

Tex., Austin—Alcalde Oil Co., incorporated; Herman Brown, Norwood Bldg.

Tex., Dallas—Nicholson Oil Co., incorporated; Earl E. Howrey, Southwestern Life Bldg.

Tex., El Paso—Western Gas Co., subsidiary of El Paso Natural Gas Co., Bassett Tower, reported, completed plans for immediate construction of a 12-in., 900-lb. pressure natural gas pipe line and 4 compressor stations at cost of \$6,000,000; line will extend westward from present terminus at El Paso, Tex. to Douglas and Bisbee, Ariz.; designs and plans by Ford, Bacon & Davis, Inc., 39 Broadway, New York City, construction supervised by Stone & Webster Engineering Corp., 49 Federal St., Boston, Mass.; Engineers Public Service Co., Inc., 120 Broadway, New York City, has obtained a 3-year option to buy stock control of El Paso Natural Gas Co.

Tex., Fort Worth—City voted approval of municipal ownership of domestic and industrial fuel gas system. 12-25

Tex., Houston—Sinclair Oil and Refining Co., (Sinclair Consolidated Oil Corp., 45 Nassau St., New York, holding company), reported, plans expenditure of \$4,000,000; new construction will double capacity of company's plant on ship channel; erect tanks, stills and engine house improvements.

Tex., Longview—Humble Oil & Refining Co., Humble Bldg., Houston, constructing 4 unit pumping station to connect company's holdings in this field with Baton Rouge, La., refinery through Van-Louisiana pipe line; construction soon to begin on branch line from Henderson oil field, south of Longview to pumping station; J. C. Hanrahan in charge.

Tex., Ranger—G. and D. Drilling Co., capital \$50,000, incorporated; John D. Gholson, L. E. Dutton.

Va., Richmond—Hankins & Collins, 1410 W. Clay St., Richmond, reported, has contract for erection of pier and gasoline tank, cost \$25,000, for Gulf Refining Co., 701 E. Leigh St.; gasoline tank will have capacity of 25,000 gals. and will be used for storage.

Ice and Cold-Storage Plants

Ga., Austrell—Marietta Ice & Coal Co., reported, plans \$50,000 ice plant.

Ky., Maysville—Kentucky Power & Light Co., subsidiary of Kentucky Utilities Co., Louisville, reported, plans rebuilding ice plant on Union St.; brick; install 50 ton ice machine purchased from York Ice Machinery Co., York, Pa.; work by construction forces of Kentucky Utilities Co.; cost \$90,000.

Mo., St. Louis—Artificial Ice Co., incorporated; Carl E. Anderson, 4105 Prescott St., Dallas, Tex.

N. C., North Wilkesboro—Frick Artificial Ice Mfg. Co., Waynesboro, Pa., Z. B. Wilson, Erection Engr., installing ice plant at City Fuel Yard, Inc., located between Maple and Cherry Sts.; capacity 10 tons daily; electrically operated; cork lined storage room is being built adjacent to plant; Charles Cadora, Cork Installer, Atlanta, Ga.; Grady Dimmette and Charles Horton, in charge.

Okl., Muskogee—Bodine Ice Machine Co., 600 Prospect St., Springfield, Mo., reported, has contract for 10 ton ice plant and 700 ton ice storage plant for Midwest Fruit Corp.

Okl., Ryan—City, W. M. Crowe, Engr., reported, considering erection of \$17,000 ice plant.

Iron and Steel Plants

Tex., Fort Worth—McCrossin & Knapp, 82 Beaver St., New York, reported, preparing sketches for steel manufacturing and fabricating plant for corporation, care of Scullin Steel Co., 6700 Manchester St., St. Louis, Mo.

Land Development

Ala., Birmingham—City voted \$500,000 park improvement bonds; plan permanent improvements to Avondale, Ensley and Green Springs Parks, etc.; work to begin at once. 1-1

Fla., Miami—N. O. Penny & Sons, Inc., capital \$75,000, incorporated; N. O. and O. G. Penny, both 11 N. E. Second St.

Fla., Miami—Harris & Shafer, Inc., incorporated; W. J. Harris, 86 N. W. Tenth St.

Fla., Tampa—Lakeside Grove Co., incorporated; A. B. McMullen, M. H. Draper, both 215 Madison St.

Ky., Maysville—Daniel Boone Orchards incorporated by Major W. Irving Shuman, Cincinnati, O., and associates; acquired orchard property of 2400 acres from Maysville Land & Fruit Co.

La., New Orleans—Bd. of Commrs., City Park, completed plans for development of 1055 acre playground and scenic park extending from City Park to Lake Pontchartrain; probably expend \$3,000,000 in development program, which will involve roadways, water areas, monuments and open air facilities, etc. 9-4

Md., Baltimore—Byrne-Harford Building Co., Inc., 231 St. Paul Place, incorporated; James Charles Byrne.

Md., Sykesville—Springfield Cemetery Co., incorporated; Louis P. Schultz, Howard Warfield.

Mo., St. Louis—Bennett Properties Corp., 3471 S. Grand Blvd., incorporated; Henry C. Andree, 4414 McPherson St.

Mo., St. Louis—Carwood Realty Co. incorporated; Medora Newsom, Fulton.

Mo., St. Louis—H. A. Griese Realty Co., capital \$50,000, incorporated; H. A. Griese, 3651 Shenando St.

Mo., St. Louis—Gerst Bros. Mfg. Co., incorporated; Joseph J. Gerst, 3125 Norwood St.; John F. Guerst.

Mo., St. Louis—Bush-Burns Realty Co., 712 Chestnut St., plans development of subdivision Westhampton; Myers, Keller & Byers Co., Engrs., 717½ Chestnut St.; Fruin-Colnon Contracting Co., 601 Merchants; Laclede Bldg., has contract for grading.

Mo., Warsaw—Lakeview Development Co. incorporated; George G. Huse, George C. Colbert.

Okl., Oklahoma City—American Realty Co., incorporated; Robt. J. Keegan, Perrine Bldg.

Okl., Tulsa—H. G. Hayes, in charge construction work on "Valhalla", 160-acre cemetery project on Broken Arrow Rd.; construct lake covering 18 acres; erect combination chapel and mausoleum; stone enclosed water tower, office building, service building and greenhouse.

Tex., El Paso—Dr. W. R. Weeks, 1512 N. Stanton St., plans development of 30 acre tract.

Tex., San Angelo—Park Bld., C. W. Hobbs, reported, plans \$18,000 expenditure for park improvements.

Va., Norfolk—Fidelity Holding Corp., incorporated; W. C. Pender, 812 Stockley Gardens St.

Lumber Enterprises

Ark., Calico Rock—Johnson & Crisp, plans installing stave mill.

Fla., Melrose—Melrose Naval Stores Co., George W. Hall, Palatka, Mgr., organized to acquire Tyson Turpentine Place.

Fla., Tidewater—James D. Lacey Co., acting as forest managers for 40,000 acre property of Forestry Associates, Inc., in Levy County, announced sale of A. S. Nicholas turpentine place at Tidewater to Tidewater Naval Stores Co.

Md., Baltimore—Fairmount Mill & Lumber Co., 1426 Fairmount Ave., plans sheds.

Missouri—Western Tie and Timber Co., reported, consolidated with Hobbs Tie & Timber Co.; will operate as Hobbs-Western Tie & Timber Co.; R. C. Hobbs, Pres.; general office Syndicate Trust Bldg., St. Louis; merger includes about 3000 tie yards throughout the territory and all tie yards in Howell County.

S. C., Lake City—Longest Lumber Co., incorporated; F. B. Longest, L. T. Jeter.

Mining

La., Vinton—Freeport Texas Co., 52 Wall St., New York, reported, acquired sulphur rights to property known as Vinton dome, with cap rock area of approximately 750 acres at Vinton, 12 miles southwest of Sulphur; exploration drilling to begin at once.

Mo., Joplin—Easy Money Mining Co., chartered; George W. Moore, 312 Wall St.

Mo., West Alton—Cordes Materials Co. incorporated; Edwin L. Cordes, Wm. Freese.

Tex., Alpine—I. A. Owens, reported, leased and will develop Bird mines, 11 miles east of Alpine, U. S. Highway No. 90.

Tex., Del Rio—American Metal Co., Ltd., 61 Broadway, New York, reported, begin work about Feb. 1 on new mine or series of mines in Shafter area of Presidio County, south of Marfa.

Va., Gloucester—Beaver Dam Marl Corp. incorporated; Eugene M. Nourse, Russellville, Ky.

Miscellaneous Construction

Ala., Mobile—Alabama State Docks Comsn. let contract to Automatic Sprinkler Corp. Standard Bank Bldg., Cleveland, Ohio, for installing sprinkler system in 3 temporary warehouses under construction; Frank L. Sayner, Gen. Contr., 253 St. Louis St. 1-22

Ark., Helena—U. S. Engr. Office, McCall Bldg., Memphis, Tenn., opens bids early in February on approx. 900,000 cu. yd. levee enlargement along Mississippi River, costing approx. \$250,000.

D. C., Washington—Following prospective bidders on refuse incinerators, bids due Mar. 4 at office of District Commrs., Luther H. Reichelderfer, District Engr., District Bldg.; Decarie Incinerator Co., Nelson Ave. and Rawson St., Long Island City, N. Y.; Hiller Engineering & Construction Co., 122 Livingston St., Brooklyn, N. Y.; Nye Odorless Incinerator Corp., 50 E. 42nd St., New York, main office Albany, Ga.; The C. O. Bartlett & Snow Co., 6200 Howard Ave., Cleveland, Ohio; Morse, Boulder Destructor Co., 205-7 E. 42nd St.; Palmer Corp., 150 Nassau St., both New York; Pittsburgh-Des Moines Steel Co., 3403 Neville Island; Chain Grate Incinerator Co., Inc., Forbes & Jumonsville St., both Pittsburgh, Pa.; F. L. Decarie, 134 W. Elmira St., Los Angeles, Calif.; Metcalf & Eddy, Architects, Statler Bldg., Boston, Mass. 1-29

Fla., St. Petersburg—West Coast Bridge & Tunnel Co., Inc., St. Petersburg, applied to State Railroad Comsn., Tallahassee, for permission to construct causeway and tunnel across Tampa Bay between Pinellas Point, just south of St. Petersburg, and Piney Point, northern Manatee County, costing approx. \$6,000,000; plans call for tunnel under present ship channel 2500 ft. long; leading up to tunnel will be 2 islands, 900 ft. each, from which tunnel would be sunk; island to be midharbor terminal of bridges of trestle construction; has War Dept. permit.

La., Gretna—Swimming Pool Association, Albert Samuel, Pres., 620 First St., has plans complete for \$25,000 swimming pool, Derbigny and Delord St. between 12th and 13th; 50x150 ft., rein. conc., dressing rooms, machinery room, drilled well; Theo. L. Perrier, Archt., Maritime Bldg., New Orleans. 1-29

La., New Orleans—New Orleans Motor Speedway Co., recently organized by Indianapolis and New Orleans business men, starting construction on automobile race track on 100-acre tract few miles below city; entire tract will be landscaped and fenced; contracts for part of work already let; \$400,000.

La., New Orleans—Bd. of Commrs. of Port of New Orleans opens new bids Feb. 15 for erecting 54 steel rolling doors at Mandeville St. wharf.

Md., Catonsville, Baltimore—George R. Morris Organization, Morris Bldg., Baltimore, plans swimming pool; plans to be ready for distribution to bidders in about 2 weeks; modern, 60x150 ft., filtered water; private plans.

Miss., Biloxi—City, J. J. Kennedy, Mayor, votes Feb. 17 on \$50,000 bonds for dredging and constructing docks.

Miss., Vicksburg—U. S. Engr. Office, P. O. Box 667, let contract to Dave Elkas, Greenville, at 15.25 cents per cu. yd. for 100,000 cu. yd. levee, south bank Arkansas River, Richland Bend.

Mo., Jefferson City—U. S. Engr. Office, Postal Telegraph Bldg., Kansas City, let contract to Kansas City Bridge Co., 215 Pershing Road, Kansas City, for 8970 lin. ft. standard pile clump dikes, Missouri River, Murrays Bend. 1-22

Tenn., Memphis—U. S. Engr. Office, McCall Bldg., let contracts for 1,110,000 cu. yd. earthwork, Lower St. Francis and White River Levee Districts: Item 1, Lower St. Francis, piece 23, 1,050,000 cu. yd., work by hired labor and government plant; Item 2, White River, Piece 44A, 38,000 cu. yd., and Item 3, White River, Piece 44B, 22,000 cu. yd., both to Edward H. Polk, Memphis, Tenn., at 20 cents per cu. yd. 1-1

Tex., Amarillo—Burrus Panhandle Elevators, J. Perry Burrus, Pres., 2701 Alamo St., Dallas, Tex., advises regarding elevator, contracts for steel, cement, gravel and lumber placed; yet to buy elevating machinery, conveyors, cleaners, motors and transmission machinery. 1-22

Tex., Beaumont—Port Comsn., W. C. Tyrrell, Chmn., started taking soundings of water depth and river about city wharves as first step in expansion program; erect 2 warehouses; \$600,000 bonds authorized by City Comsn. to be issued.

Tex., Sabine Pass—U. S. Engr. Office, Galveston, let contract to Pacific Co., Inc., Galveston, at \$106,000, for repairing Sabine Pass west jetty. 10-16-30

Va., Yorktown—U. S. Dept. of Interior, National Park Service, Washington, Oliver G. Taylor, Engr., Yorktown, will construct parking areas, build short stretches of roads leading to historic spots, provide water supply by drilling artesian well, install about 2 mi. 6 in. water mains, 1 mi. 4 in., 2 mi. of smaller lines, build adequate toilet facilities for 100,000 people, drinking fountains, information stands, band stands, reviewing stands, reception buildings, erect signs, clear grass areas, construct pier on river for "Constitution," constructing landing piers for small boats, improve commercial pier, etc.

Miscellaneous Enterprises

Ala., Birmingham—Jefferson Push Broom Works, reported, plans establishing plant at Woodlawn; move plant from near Mount Pinson.

Ark., Fort Smith—Bodine Ice Machine Co., 600 Prospect St., Springfield, Mo., reported, has contract for erection of \$100,000 plant for Banfield Brothers Packing Co., 915 E. Apache St., Tulsa, Okla. 1-15-31

Ark., Little Rock—Capital Steel Co. incorporated; Victor E. Anderson, 803 W. 21st St., North Little Rock.

Fla., West Palm Beach—Glass & Mirror Co., incorporated; J. H. Foster, 501 38th St.

Fla., Winter Haven—Florida Orange Juice Corp., capital \$50,000, incorporated; R. S. Abernethy, 349 W. Lake Howard Drive.

Ga., Atlanta—Converse Bridge & Steel Co., 2408 Vance Ave., Chattanooga, Tenn., reported, has general contract for marble and granite sheds 896 Confederate Ave., for Commonwealth Marble & Granite Co.; struc. steel frame; cor. iron roof and walls; 3 buildings; 410x100, 140x82 ft., 56x49 ft.; cost \$38,000. 10-30

Ga., Atlanta—M. D. Smith Tent & Awning Co., 136½ Marietta St., N. W., reported, contemplates construction of manufacturing plant Piedmont Rd.; cost \$25,000.

Ga., Savannah—John Varnadoe, acquired and will operate Savannah Brush Co., 618 Barnard St.

Ga., Savannah—Merger, reported, under consideration of Baldwin Lewis-Pace Co., Barnett Bldg., Jacksonville, Fla., Pace-Lewis Co., Bank & Trust Bldg., Savannah, and

Flynn-Harris-Bullard Co., Greenleaf Crosby Bldg., Jacksonville, and 5 N. Jefferson St., Savannah; naval stores producers.

Ky., Elizabethtown—Elizabethtown Monument Co., capital \$25,000, incorporated; J. Roy Bond, Lon Keith.

Ky., Louisville—Reliable Paint Co., 906 E. Main St., increased capital \$20,000 to \$40,000.

Ky., Louisville—Furnace Ice Cream Co., capital \$50,000, incorporated; B. H. Chamberlain, 3239 Va. St.

Ky., Paducah—International Shoe Co., Second and Jefferson Sts., reported, expend \$12,000 for improvements to plant for manufacture women's shoes.

La., New Orleans—Original Triple-X Root Beer Co., reported, establish 1 story bottling plant in LaBarre Heights subdivision on Jefferson Highway.

La., Opelousas—Vincent Garbo, reported, establish \$25,000 steam laundry.

Md., Baltimore—Republic Radiator and Mfg. Co., incorporated; Theodore C. Waters, First Natl. Bank Bldg.

Md., Baltimore—Geo. E. Muhly, 115 S. Charles St., let contract to Adams-Kratz, 118 S. Carrollton Ave., for \$12,000 bakery addition 1119 S. Charles St.; 1 story; brick.

Md., Baltimore—S. B. Stalti-Monreale, 4115 Granada Ave., interested in organization of California Products and Grape Industries, Inc., with \$100,000 capital.

Miss., Jackson—Dixie Glass Bottle Mfg. Co., R. H. Green, temporary office in New Merchants Bank Bldg., reported, acquired 5 acre site on Fannin Rd. in Rankin County; erect glass bottle plant; plans being drawn by Toledo Engineering Co., Toledo, O.; will soon call for bids; W. M. Snyder, in charge.

Miss., Meridian—P. J. Krouse, Archt., M. & W. Bldg., reported, plans preparing for rebuilding burned portion of Meridian Star Bldg. 1-22

Miss., Tylertown—Chamber of Commerce, reported, interested in establishment of packing and produce plant.

Mo., Kansas City—Woodlawn Monument Co., incorporated; Lloyd Baum, 4206 Prospect St.

Mo., Kansas City—Moxie Photo Co., incorporated; Lawrence Hanley, 1041 W. 71st Terrace.

Mo., Kansas City—Summe Dairy Co., Twenty-seventh and Jackson Aves., reported, soon begin excavation for plant south side of Fifteenth St.; bottling capacity 15,000 gals.; 2 story; 104x200 ft.; Albert B. Fuller, Oscar Leslie Bldg. 12-18

Mo., Kansas City—Lee-Wald Garment Co., capital \$15,000, incorporated; Robt. E. Rooney, 3334 Tracy St.

Mo., Kansas City—David Stout & Sons, Inc., capital \$50,000, incorporated; Minor W. Stout, 5324 Euclid St.; manufacture parts of machinery.

Mo., St. Louis—Kirk Mfg. Co., incorporated; F. T. Hilliker, 110 S. Third St.; manufacture hotel and restaurant equipment.

Mo., St. Louis—St. Louis Curtain Co., capital \$20,000, incorporated; G. Shewartz, Wainwright Bldg.

Mo., St. Louis—Hallers Bird Food & Remedy Co., Inc., chartered; William Haller, 5342 Nagel St.

Mo., St. Louis—International Shoe Co., Fifteenth St. and Washington Ave., constructing \$500,000 aluminum and marble 35 ft. entrance and elevator lobby; Wilbur T. Trueblood & Huzo K. Graf, Archts., Chemical Bldg.

Mo., St. Louis—Sauerbrunn & Co. incorporated; Roy C. Sauerbrunn, 5815 Cates Ave.; manufacture weatherstripping.

Mo., St. Louis—Rudd Engineering Co. incorporated; Ernest A. Green, Boatmans Bank Bldg., St. Louis.

Mo., St. Louis—Gorg-Seltzen Construction Co., capital \$50,000, incorporated; Harold E. Gorg, 6157 Waterman St.

Mo., St. Louis—St. Louis Dairy Co., B. M. Lide, Jr., Pres., 7442 Stratford St., acquired 2 tracts of land on south side of Pine St.; formulating plans of improvements.

Mo., St. Louis—Papendick Bakery Co., 3500 W. Florissant Ave., reported let contract to Acme Construction Co., 1782 Railway Exchange Bldg., for alterations to bakery.

Mo., Washington—Peerless Cap Co. incorporated; John J. Ernest, W. F. Hempleman.

N. C., Canton—Champion Fibre Co. advises are not contemplating any improvements beyond necessary repair and replacement at this time.

N. C., Charlotte—Swift & Co., reported, has plans by Engr. Dept., Union Stock Yards, Chicago, Ill., for addition to plant; 2 story; 75x35 ft.; brick walls; compo. roof; receiving bids.

N. C., Charlotte—McClaren Rubber Co., reorganized with I. Eisbrouch, V. P. and Gen. Mgr.; will probably issue \$500,000 stock; later contemplate erection of \$500,000 plant.

N. C., Greensboro—Tom Pemberton, Ashboro Road, Pemberton's Dairy, establish plant for manufacturing ice cream; installing machinery.

Okla., Muskogee—Burton D. Hurd, Quincy, Ill., reported, plans \$25,000 dehydration plant.

Okla., Tulsa—Buffalo Rock Bottling Co., capital \$18,000, incorporated; John A. Chadle, Mayo Bldg.

Tenn., Chattanooga—Southern Dairies, Inc., 160 M Sts., N. E., Washington, D. C., reported, have plans ready for bids Feb. 10 on dairy plant Dodson Ave. and Blanford St.; 2-story; 124x64 ft. and power house 30x60 ft.; conc. foundations brick walls; compo. roof; steel sash; cost \$100,000; plans by McCormick Co., Inc., 121 S. Negley St., Pittsburgh, Pa. 1-1-31

Tenn., Lebanon—T. N. King, 335 Second Ave., Nashville, reported, has contract for bottling plant for Coca Cola Bottling Co.; 2 story; 130x60 ft.; conc. foundations; brick wall; stone trim; steel sash and doors; cnc. and hardwood floors. 10-2

Tenn., Memphis—Lawrence Laboratories, Inc., 424 S. Main St., incorporated; W. S. Lawrence, Med. Arts Bldg.

Tenn., Memphis—Gauger Construction Co., 910 Fidelity Bank Bldg., changed name from Gauger-Korsmo Construction Co.

Tex., Beaumont—R. G. Anderson, 760 9th St., representing M. F. Yount, Manitou, Colo., reported, interested in establishment of stone finishing plant for Manitou green stone.

Tex., Beaumont—C. J. Patterson Corp., 4050 Penn St., Kansas City, Mo., reported, completed arrangements for constructing unit of baking plant on 5 acre tract at Laurel Ave. and Eleventh Sts., to be occupied by Fehr Baking Co., 4104 Leeland St., Houston; install modern equipment.

Tex., El Paso—Jacob Estrada, 108 S. Santa Rosa, construct 1 story addition to bakery, S. Laredo St.; fireproof, foundation to cover additional stories; Leo M. J. Dielmann, Archt., 300 E. Commerce St.

Tex., Houston—Southwest Neon Sign Co., incorporated; H. S. Crawford, 234 Hathaway St.

Tex., Longview—Horace Glover construct \$60,000 laundry and cleaning plant.

Tex., McAllen—Morrison Funeral Home, capital \$40,000, incorporated; W. F. Morrison, M. R. Nelson.

Va., Alexandria—Aresto Co., Union Ave., Baltimore, Md., considering removing plant to Alexandria and merging with American Pump & Valve Co., Merchants St.; manufactures flame arrestors, non-explosive tanks, etc.; may issue \$30,000 3 yr. mortgage bonds.

Va., Warsaw—Northern Neck Creamery, Inc., capital \$50,000, chartered; R. Bruce Omohundro, Farmers Neck.

W. Va., Huntington—Model Laundry Co., 2047 Third Ave., capital \$25,000; incorporated; O. L. France, 2124 Fifth Ave.

Motor Bus Lines and Terminals

La., New Orleans—Cousins-Farris Auto Service, Inc., chartered; Michael J. Cousins, 2703 S. Broad St.

Md., Westminster—B'ne Ridge Transportation Co., Liberty and Redwood Sts., Baltimore, reported, acquired bus line operated between Westminster and Union Bridge by O. C. Corbin.

Va., Richmond—I. M. Lassiter, Tri-City Motor Express Lines, reported, authorized by State Corp. Comsn. to establish interstate freight bus service between North Carolina line, and High Point, N. C.

Railways

La., New Orleans—U. S. Engr. Office, First New Orleans Dist., rejected bids for detour track, maintaining track during construction of bridge, relaying and connecting old track, work to be done by government. 11-13-30

N. C., Wilmington—Atlantic Coast Line R. R. Co., Geo. B. Elliott, Pres., advises regarding plans for improvements, plans consummated so far contemplate purchase for relaying of main tracks, of 20,000 tons 100-lb. RE section steel rail, together with necessary accessories for relaying; purchase of 7500 tons tie plates and 300,000 cu. yd. Virginia crushed granite ballast; 100,000 cu. yd. Florida crushed limestone ballast and 300,000

cu. yd. Alabama crushed furnace slag ballast, for further strengthening track structure; will renew crossties now in tracks by use of creosoted ties for about 3/4 of total renewals to be made in 1931; continue program of replacing wooden open deck trestles during 1931 to end that all wooden open deck trestles in main line tracks will be ultimately replaced with permanent structures.

Tenn., Memphis—Illinois Central R. R. Co., J. J. Bennett, Pur. Agt., Chicago, Ill., ordered locomotive and freight car castings from Standard Brake Shoe & Foundry Co., Pine Bluff, Ark., involving \$200,000.

Railway Shops and Terminals

W. Va., Lumberport—Baltimore & Ohio R. R., H. A. Lane, Ch. Engr., Baltimore, Md., let contract to J. M. Cain, 2712 N. Calvert St., Baltimore, for steel stand pipe water treating plant, 30x45 ft., with 100,000 gal. storage capacity; treating plant with capacity of 15,000 gal. per hour; pump house and pumping equipment to replace that in service; total cost \$40,000; started construction.

Roads, Streets and Paving

In connection with LAND DEVELOPMENT large sums are expended for roads, streets, paving and sidewalks. Details will be found under that classification.

Proposed Construction

ALABAMA—State Highway Dept., Woolsey Finnell, Director, Montgomery, opens bids Mar. 4 for 11 roads in following counties:

Baldwin—12.4 mi. paving, Bay Minette-Stapleton, 17.5 mi. paving, Robertsdale-Florida state line; 10.1 mi. paving, Stapleton toward Mobile; 2 mi. draining, paving, spur road, Proj. 221 toward Loxley;

Butler—3 mi. grading, draining, Chapman-Georgiana;

Macon—7.30 mi. grading, draining, Tuskegee toward Auburn;

Lee-Macon—10.71 mi. grading, draining, Tuskegee-Auburn;

Marion—6 mi. paving, Guin toward Hamilton;

Colbert—11 mi. paving, Tusculumbia westward;

Madison-Limestone—12.5 mi. paving, Huntsville westward;

Morgan—2 mi. paving, Hartselle-Flint.

D. C., Washington—Comms., D. C., District Bldg., opens bids Feb. 17 for (A) about 30,000 sq. yd. sidewalks with cement conc., (B) 45,000 sq. yd. cement conc. alleys; and (C) resurfacing about 55,000 sq. yd. asphaltic conc. or granite block streets, by replacement method with sheet asphalt on conc. base, or alternate; separate contracts will be awarded on Items A, B and C.

KENTUCKY—State Highway Dept., H. D. Palmore, Engr., Frankfort, opens bids Mar. 11 for 14 roads and 3 bridges in following counties:

Crittenden—10 mi. surfacing, U. S. 60, Marion-Livingston; 7.7 mi. surfacing, Marion-Ford's Ferry;

Hancock-Breckinridge—8.5 mi. surfacing, U. S. 60, Hawesville-Cloverport;

Union—9.5 mi. surfacing, U. S. 60, Morganfield-Henderson County line;

Webster—12 mi. surfacing, U. S. 41, McGaw School-Wanamaker;

Edmonson—10.5 mi. surfacing near Brownsville-Grayson County line;

Todd—10.5 mi. grading, draining, Russellville-Guthrie road, Logan County line-Guthrie;

Gallatin—7.5 mi. surfacing, Louisville-Cincinnati road, Warsaw-Carroll County line;

Trimble-Carroll—8 mi. surfacing, Bedford to paving near Carrollton;

Franklin-Anderson—8.5 mi. grading, draining, Frankfort-Alton;

Letcher—4 mi. surfacing, Mayo Trail, Jenkins-Pike County line; bridge at Marl, Whitesburg-Hazard road; bridge at Ermine, Whitesburg-Jenkins road;

Clinton—5 mi. grading, draining, Albany-Burkesville road, beginning at Albany;

Floyd—11 mi. surfacing, Mayo Trail, Allen to Pike County line;

Jefferson—bridge over Long Run Creek, U. S. 60.

KENTUCKY—State Highway Dept., H. D. Palmore, Engr., Frankfort, plans 4 roads for future letting in following counties:

Christian—grading, draining, Crofton-Hopkinsville; grading, draining, from 3 mi. north of Crofton Lake to Hopkins County line;

Nelson—retreading, Bardstown-Lebanon; retreading, Bardstown to Hardin County line.

La., New Orleans—City Comsn. Council plans plaza facing new hall of justice.

La., New Orleans—City, Comsn. Council, opens bids Feb. 10 for 7½ mi. improvements on 18 streets; 6 mi. hardsurfacing, 1½ mi. temporary surfacing.

La., Shreveport—City Council, Office of City Engr., opens bids Feb. 24 for 1500 sq. yd. asphaltic conc. paving and 1200 lin. ft. curb and gutter, Merwin St.

MARYLAND—State Roads Comsn., L. H. Stuart, Sec., Baltimore, opens bids Feb. 10 for 3 roads in following counties:

Carroll-Frederick—concrete on Liberty road, Taylorsville toward Unionville, 3.71 mi., and Unionville to Libertytown, 2.69 mi., Cont. C1-89-54 F.156-54; F. A. 156E;

Dorchester—1.91 mi. conc., Finchville-Reliance road, end of Cont. D-57 to Delaware line, D-69-14; F. A. 222;

Wicomico—2.93 mi. conc., Catchpenny-Whitehaven road, end of Cont. W1-44 toward Whitehaven, W1-64-14, F. A. 228.

MARYLAND—State Roads Comsn., L. H. Stuart, Sec., Baltimore, has low bids for 2 roads in following counties:

Caroline—1.07 mi. conc., Goldsboro-Del. Line Road, Cont. C3-22, P. D. Phillips & Bros., Salisbury, \$14,495;

Queen Anne's County—1.15 mi. conc., Sudlersville-Del. Line Road, Cont. C9-24, P. D. Phillips & Bros., \$18,514. 1-22

Maryland—State Roads Comsn., L. H. Stuart, Sec., Baltimore, has low bid for 1.55 mi. conc. end of W1-11 near Mardela Springs toward Vienna, Cont. W1-55-12, F. A. 221-A, George & Lynch, Denver, Del., \$23,969.

Md., Baltimore—City, Nathan L. Smith, Highways Engr., opens bids Feb. 11 for 10,000 sq. yd. sheet asphalt, Cont. 577, and 11,000 sq. yd. cement conc., 578.

Md., Baltimore—City, Nathan L. Smith, Highways Engr., has low bids for street work: Cont. 573, 9600 sq. yd. sheet asphalt, National Paving & Contracting Co., Menlo Dr. and Western Md. R. R., \$41,621; Cont. 574, 8700 sq. yd. cement conc., P. E. Rawlings & Son, 2400 Alsiquith St., \$18,018.

Md., Upper Marlboro—Prince Georges County expend \$190,000 for roads in 1931, building 11 mi. and 2 bridges, including 1 mi., Chillum road, conc., Riggs road toward Queen's Chapel road near Northwest Branch bridge; 1 mi. conc., University Dr., beginning at Queen's Chapel road; 1 mi. new macad. roadway, Maryland Park, Central Ave. to District line; 2 mi. gravel, Brown's road, Ritchie to Marlboro; 2 mi. gravel, Croome road; 1 mi. conc. extension of Old Powder Factory road, from Riggs road end; 1 mile gravel, completion, Gordon's Corner-Hunt's Corner road; 1 mi. gravel, Clinton-Piscataway road, from Clinton end; 1 mi. conc. completion of road, Suitland to Marlboro road at District Heights; twin bridges, Jefferson Ave., Riverdale.

Md., Salisbury—City build 50-ft. street skirting part of 55-acre park; proposed street to eventually encircle entire park.

Mississippi—State Highway Comsn., C. M. Williamson, Director, Jackson, immediately start patch work on Highway 90, Louisiana state line to Bay St. Louis with view to giving road surface treatment.

Miss., Clarksdale—Coahoma County Supvrs., M. J. Bouldin, Pres., probably ask bids in 10 days for paving hard-surfaced highway, made possible recently by \$200,000 bond issue to be matched by similar amounts from Federal appropriation.

MISSOURI—State Highway Comsn., T. H. Cutler, Ch. Engr., Jefferson City, has low bids for 46 roads in following counties:

Atchison—1.056, 4.899, 1.655, 4.760, 4.404 mi. 10-ft. conc., 309A, 309B, 309C, 309D, 309E, M. N. Penney, Lawrence, Kan., \$7543, \$34,631, \$12,296, \$34,029, \$31,235;

Bollinger—3.581, 3.820 mi. graded earth, 51-27, 51-28, Lahar Construction Co., Boonville, \$33,548, \$32,168;

Stoddard—1.670, 4.106, 4.239 mi. gravel, 51-29, 51-33, 51-34, Lahar Construction Co., \$17,253, \$23,298, \$26,843;

Camden—3.22, 3.576 mi. gravel, ST-1, ST-3, Chas. Spiteaufsky, 1918 Baltimore St., Kansas City, \$14,353, \$16,601;

Carter—3.731, 3.132, 0.974 mi. gravel, 21-42, 21-43, 21-44A, M. E. Gillioz, Monett, Mo., \$31,225, \$33,031, \$22,05;

Douglas—4.180, 3.806 mi. gravel, 14-27, 14-28, Martin Wunderlich, St. Paul, Minn., \$49,273, \$41,605;

Dunklin—0.224 mi. 9-ft. conc. and gravel, 25-52, O. O. Fuller, Nevada, Mo., \$34,731; 2.977 mi. gravel, Ref. 13, Richmond Construction Co., Advance, \$16,882;

Reynolds—2.294 mi. graded earth, SA-1, Chaney & Amyx, Branson, \$15,826;

Gentry—2.610, 2.509 mi. gravel, SA-2, SA-3, Pioneer Construction Co., Glover Bldg., Kansas City, \$11,772, \$12,106;

Howard—1.989, 1.599 mi. graded earth, SC-3, SC-5, P. J. Murphy, \$6766, \$3298;

Boone—1.610 mi. graded earth, SC-6, P. J. Murphy, \$3968;

Lafayette—1.995 mi. 9-ft. conc., 278A, Davis Construction Co., Boonville, \$13,170;

Salina—4.06, 4.37, 4.598, 3.971 mi. 9-ft. conc., 278B, 278C, 278D, 16B, Davis Construction Co., \$24,630, \$24,551, \$29,767, \$26,063;

Lincoln—1.308 mi. gravel, SP-1, Samples & Elsea, Kirksville, \$9826;

Pike—1.300 mi. gravel, SP-2, Samples & Elsea, \$9560;

Monticau—3.462, 4.928 mi. gravel, 5-51, 5-52, Martin Wunderlich, St. Paul, Minn., \$37,143, \$18,989;

Ray—4.492, 4.163, 4.288, 4.161 mi. gravel, 335A, 335B, 335C, 335D, G. E. Gillioz, Monett, \$27,038, \$39,097, \$31,532, \$71,963;

Scott—1.066, 1.983 mi. gravel, SN-1, SN-3, Richmond Construction Co., \$2828, \$10,199;

Sullivan—1.839 mi. gravel, 340B, Knutson Bros. Const. Co., 35200 Main St., Kansas City, \$12,778;

Adair—4.600, 4.506 mi. graded earth, 340C, 340D, Knutson Bros., \$37,468, \$82,337;

Wayne—4.581, 4.769 mi. gravel, 67-9, 67-10, M. E. Gillioz, Monette, \$69,766, \$55,938;

Webster—3.233 mi. gravel, 60-32, Chaney & Amyx, \$28,780. 1-15

Mo., Clayton, St. Louis—St. Louis County Court has low bids for 3 roads: New Halls Ferry road, 20-ft. conc., Robbins Mill road to Patterson road, 5759 ft., Crean & Scott Construction Co., 1242 Sublette St., \$38,239;

Charbonnier road, Howdershell to Aubuchon road, 14,082 ft., Bangert Bros. Construction Co., 44a S. Florissant Road, \$125,897; Accommodation Road cutoff; 3030 ft. paving, Bangert Bros. Construction Co., \$15,216. 1-22

Mo., Kansas City—City, Park Bd. approved plans for Liberty Memorial approaches, beautification of Union Station Plaza and Kessler road; with \$450,000 bonds available, city will reshape north approach of memorial, grading existing hill down to 8% slope; steps, walks and planting will be included.

Mo., St. Joseph—City, Engineering Dept., Margaret Bodtke, Sec., drawing plans for resurfacing 22nd St. with asphalt conc.; probably repave several blocks between Frederick Ave. and Julie St.; plans drawn for heavy resurfacing 4 blocks, Mitchell Ave. to Duncan St.; considering widening and other improvements for various sections of street south of Pacific St.

Okla., Tulsa—City, H. A. Parker, City Engr., has plans approved for paving projects totaling approx. \$45,000.

South Carolina—State Highway Dept., Ben M. Sawyer, Ch. Commr., Columbia, opens bids Feb. 10 for 9.455 mi. plain Portland cement conc. paving, Route 57, Mullins to Arians Cross Roads, S. P. 707, 43.115 cu. yd. excavation, 115,101 sq. yd. paving, 6417 lb. rein. steel, 2763 lin. ft. rein. conc. pipe and 50 tons rip rap; readvertised from Dec. 30 letting.

TENNESSEE—State Dept. of Highways and Public Works, T. E. McEwen, Engr., Nashville, opens bids Feb. 20 for 8 roads (paving unless otherwise designated) and 4 bridges costing \$900,000 in following counties:

Hamilton—3.1 mi., Highway 29, Daisy-Soddy, No. 231-D;

Hickman—9.5 mi., State Highway 100, Wrigley-Centerville, 236-E;

Montgomery—4 mi. grading, draining, State Highway 13, Clarksville-St. Bethlehem, No. 238-A; 7 mi. grading, draining, State Highway 13, Yellow Creek-Line Oak, 238-B;

Sullivan—10.8 mi., state line, 237-B;

Polk—3.6 mi. grading, draining, 2 bridges, Highway 71, Ducktown-Copper Hill, 247-B;

Sevier—3.1 mi. grading, draining, State Highway 71, Blount County line-Delozion's Store, 250-A;

VanBuren—5.5 mi. grading, draining, State Highway 30, Spencer-Rocky River, 2 bridges included, 252-A.

TENNESSEE—State Dept. of Highways and Public Works, R. H. Baker, Commr., Nashville, opens bids Feb. 13 for 4 roads (grading, draining) and 9 bridges in following counties:

Rhea-Meigs—1.134 mi. State Highway 30, being approaches to Tennessee River bridge between Dayton and Decatur, Special Bridge Proj. 18-B, 61,724 cu. yd. excavation, 2076 lb. deformed steel bars;

Cannon—0.473 mi., State Highway 53, between Coffee County line and Station 1105 plus 00, 5 bridges over 20-ft. span, S. A. 543-B, 52,872 cu. yd. excavation, 53,607 cu. yd. excavation, 80,431 lb. deformed steel

bars; 3.778 mi., State Highway 53, between Proj. 543-B and Woodbury, S. A. 543-D, 45,035 cu. yd. excavation;

Shelby—3.465 mi. grading, draining, State Highway 3, near Whitehaven to South Parkway, 4 bridges over 20-ft. span, S. A. 553-A, 98,363 cu. yd. excavation, 226,379 lb. deformed steel bars.

TEXAS—State Highway Comsn., Gibb Gilchrist, Highway Engr., Austin, plans 10 roads and 5 bridge projects in following counties:

Bryan—2.23 mi. grading, draining, Highway 90, Navasota River to Brazos River, S. A. 740-D, Unit 1, \$135,000;

Comanche—rein. conc. bridge over Leon River, Highway 10, 1020 ft., F. A. 580-A, \$90,000;

Robertson—steel, conc. timber pile trestle bridges, Highway 43, 4040 ft., F. A. 582-C, \$50,000;

Henderson—11.41 mi. rein. conc. paving, Highway 40, Athens-Eustace, F. A. 576-D, Unit 2, \$300,000;

Harris—14.256 mi. grading, draining, rein. conc. with metal shoulders, Highway 35, Hunting Bayou-Westfield road, F. A. 514-D, \$600,000;

Haskell—17.00 mi. grading, draining, rein. conc. paving, Highway 30, Haskell-Knox County line, F. A. 452-C, \$475,000;

Childress—steel, conc. and timber pile trestle bridge over Buck Creek and Prairie Dog Town Fork of Red River, 2320 ft., Highway 4, F. A. 573-B, \$95,000;

McLennan—14.5 mi. rein. conc. paving, Highway 2, from point 2 mi. north of Bruceville to Waco, F. A. 614-A, Unit 2, \$375,000;

Hall—14.670 mi. grading, draining, Highway 18, Turkey-Road Dist. No. 3 line, F. A. 602-A, Unit 1, \$60,000;

Guadalupe—12.435 mi. grading, draining, Highway 123, Seguin-Wilson County line, F. A. 536, \$125,000;

Brazos—rein. conc. bridges, 1000 ft., Highway 6, F. A. 471, \$80,000.

Cherokee—9.267 mi. grading, draining, Highway 43, east line of Road Dist. 1 to Rusk County line, F. A. 555-D, Unit 1;

Jasper-Tyler—2612-ft. steel, conc. and timber pile trestle bridge over Neches River, S. A. 606-A, \$160,000;

Roberts—14.136 mi. grading, draining, Highway 33, Gray County line to Hemphill County line, \$120,000;

Wheeler—13.299 mi. grading, draining, Highway 75, Shamrock to Oklahoma state line, F. A. 547-E, Unit 1, \$52,000.

Tex., Ballinger—Runnels County, Paul Trimmer, Judge, plans 10.957 mi. triple bitum. surface treatment on 4-in. compacted caliche surface course and 4 to 6-in. compacted caliche base course, Highway 4, Ballinger to Counce County line, F. A. 590-A, Unit 2; G. M. Garrett, Res. Engr.

Tex., Brownwood—Brown County, E. M. Davis, County Judge, plans 700 mi. grading, draining, Colorado River bridge and approaches, F. A. 584-A, Highway 10; Leo Ehlinger, Res. Engr., Box 210.

Tex., Madisonville—Madison County, A. McCormick, Res. Engr., plans 3.457 mi. grading, draining, Highway 90, Joze Switch to Grimes County line, S. A. 610-F, Unit 1; also plans 3.635 mi. grading, draining, Highway 9, Madisonville to Joze Switch, S. A. 610-G, Unit 1; A. McCormick, Res. Engr.

Tex., Paint Rock—Concho County, O. L. Sims, Judge, plans 17.026 mi. grading, draining, Highway 9; G. M. Garrett, Res. Engr., Ballinger.

Tex., Spearman—City Comsn. accepted plans for paving 20 blocks; bids will be received by R. C. Sampson, City Mgr., as soon as engineering work is completed; Montgomery & Co., Madisonville, \$26,540;

VIRGINIA—State Dept. of Highways, C. S. Mullen, Ch. Engr., Richmond, has low bids for 14 roads and 7 bridges in following counties:

Norfolk-Nansemond—7.642 mi. grading, draining, Route 12, F-657-E, Jamison Bros., Inc., Cotton States Bldg., Nashville, Tenn., \$55,888;

Chesterfield—11.88 mi. conc., Route 31, F66ACD EW & F213AW&F173AW, G. Y. Carpenter, Chester, \$154,265;

Stafford-King George—0.521 mi. gravel, bridge over Muddy Creek, Route 37, F13CB1, Boatright, Russell & Linton, Manassas, \$10,986;

Gloucester-Middlesex—0.57 mi. grading, draining, bridge over Dragon Run, Route 30, F18ARB, Tunstall-Johnson Co., Inc., Citizens Bank Bldg., Norfolk, \$15,086;

Nottaway—2.164 mi. soil, Routes 10 and 20, F286DE, J. A. Marrow Construction Co., Inc., Clarksville, \$12,110;

Augusta—2.181 mi. macad., Route 39, F641F, Echols Bros., Inc., Alderson, \$58,828;

Orange—5.604 mi. macad., Route 32, F525-A, Hall & Mitchell, Keswick, \$96,597;

Henry—10 mi. grading, draining, bridge over Leatherwood Creek, Route 12, F450AB1, Nello L. Teer, Geer Bldg., Durham, N. C., \$138,415;

Stafford—1.046 mi. gravel, Claiborne Run underpass, R. F. & P. R. R., Route 37, F-438-A-B1, Boatwright, Russell & Linton, \$26,783;

Botetourt—6.533 mi. macad., bridges over Purgatory and Cedar Bluff Creeks, Route 33, Hugh Williams, Big Stone Gap, \$143,428;

South—3.92 mi. macad., Route 10, **FOODSDEH, T. W. Comann, Norton**, \$76,742;

Amherst—1.093 mi. macad., Route 18, F-472-A1, A. N. Campbell & Co., Inc., Peoples Natl. Bank Bldg., Lynchburg, \$33,881;

Essex—0.965 mi. grading, draining, Route 38, F646C, C. D. Bigsbee, Geer Bldg., Durham, N. C., \$7367;

Prince Edward-Lunenburg—8.038 mi. soil, Route 20, F-644-D, J. A. Marrow Construction Co., Inc., \$59,586;

Arlington—bridge over Four Mile Run near Alexandria, Route 31, S588B, Northern Virginia Construction Co., Inc., Clarendon, \$4293;

Northumberland - Westmoreland—bridge over Hampton Hall Creek, Kinsale Wharf, Route 606, S656B, J. S. Bowers, Whiteville, N. C., \$9636. 1-15

Va., Yorktown—State Dept. of Highways, C. S. Mullen, Ch. Engr., Richmond, expend approx. \$30,000 improving approach roads in this vicinity.

Va., Richmond—City, Dept. of Public Works, plans expending \$350,000 for curb and gutter and smooth paving. See Financial News Columns.

WEST VIRGINIA—State Roads Comsn., Geo. E. White, Sec., Charleston, has low bids for 10 road projects in following counties:

Fayette—6.7 mi. stone base retread, Look-out-East road, Brown, Murphy & Wright, 909 Mercer St., Princeton, \$116,611; 3.5 mi. stone base retread, Hico-Lookout road, Murphy Construction Co., Morgantown, \$48,575;

3 mi. relocation of Gauley River road for grading, West Virginia Construction Co., First Natl. Bank Bldg., Huntington, \$5080;

Hancock—5 mi. grading, draining, New Cumberland-North road, Bose & Ritchie, Ravenswood, \$118,127;

Wetzel—6 mi. grading, paving, New Martinsville-North road, W. L. Johnson Construction Co., Hicksville, Ohio, \$130,865;

Greenbrier—45,000 ft. guard rail, Acme Construction & Realty Co., Kleeman Bldg., and F. M. Yeater & Co., Smithfield, each submitted bid of 29 cents per foot;

Pocahontas-Greenbrier-Monroe—130,000 ft. guard rail, Kerr & Bishop, Morgantown, 29.7 cents per ft.;

Summers-Greenbrier-Monroe—115,000 ft. guard rail, A. W. Burns, 30.8 cents per foot. 1-15

Contracts Awarded

Ala., Prichard—City, T. M. Wilkins, Mayor, let contract to J. B. McCrary & Co., Citizens and Southern Bank Bldg., Atlanta, Ga., at \$106,000, for 12,700 cu. yd. conc. paving, 28,900 ft. curb and gutter, 30,000 lin. ft. sidewalk, 30,000 ft. sanitary sewer and 1500 ft. storm sewer; Robt. L. Totten, Inc., Engr., Brown-Marx Bldg., Birmingham. 1-8

KENTUCKY—State Highway Comsn., H. D. Palmore, Engr., Frankfort, let contracts for 2 roads in following counties:

Fulton—1.468 mi. rein. conc. paving, Fulton-Mayfield road, F. A. 146BS, N. E. Stone & Co., Madisonville, \$26,540;

Hickman—3.351 mi. rein. conc. paving, Fulton-Mayfield road, F. A. 146-CS, N. E. Stone, \$60,015. 7-24-30

La., Monroe—City, W. I. Neel, City Engr., let contract to Monroe Construction Co., Inc., 100 Wood St., West Monroe, at \$12,686, for paving M St. 1-22

La., Monroe—City, W. I. Neel, City Engr., et contract to Monroe Construction Co., Inc., Olive and River St., at \$12,686, for sheet asphalt on conc. paving.

Okla., Oklahoma City—City Council let contract to Connelly Bros. Paving Co., Magnolia Bldg., at \$2.12 per yd. for conc. slab paving, Crown Heights addition.

Okla., Tulsa—City Comsn., George Watkins, Mayor, let contract to H. L. Cannady Co., 1116 S. Lewis St., at \$15,804, for paving Delaware Pl.

TENNESSEE—State Dept. of Highways and Public Works, R. H. Baker, Commr., Nashville, let contract for 5 roads, totaling \$589,358, in following counties:

Putnam-Cumberland—10.6 mi. paving, State Highway 42, Foster & Creighton Co., Fourth and First Bldg., Nashville, \$198,481;

Cumberland—9.5 mi. paving, State Highway 42, Murray Construction Co., 508 Union Ave., Knoxville, \$185,281;

Folk—6.5 mi. grading, draining, State Highway 74, R. E. Martin, Cotton States Bldg., Nashville, \$116,191;

Hamblen—5.4 mi. grading, draining, State Highway 32, E. J. Freeman, 1101 N. Broadway, Knoxville, \$61,114;

Wilson—5.3 mi. grading, draining, State Highway 26, J. A. Sutherland, Knoxville, \$28,288.

TEXAS—State Highway Comsn., Gibb Gilchrist, Highway Engr., Austin, let contracts or rejected bids on 4 roads (conc. paving) in following counties:

Brazoria—7.416 mi. Highway 58, F. A. 442-B, Unit 2, all bids rejected;

Grayson—12.002 mi., Highway 91, S. P. 795-A, Unit 2, J. P. Foty, Burt Bldg., Dallas, \$227,892;

Houston—14.523 mi., Highway 19, F. A. 485-C & D, Unit 2, R. W. Briggs, Pharr, \$298,973;

Jones—6.060 mi., Highway 4, S. P. 855-A, Unit 2, Froemming Bros., Seymour, \$111,777. 1-1

Tex., Austin—City, Adam R. Johnson, City Mgr., let contract to Southeast Bitulithic Co., Littlefield Bldg., at \$16,434, for paving 2 driveways, park in center, with 2-in. Warrentite bitulithic on 5-in. conc. base, conc. curbs, East Ave., 13th to 15th.

Tex., Austin—City, Adam R. Johnson, Mgr., let contract to Southwest Bitulithic Co., Littlefield Bldg., at \$26,367, for paving 2 driveways, with park in center, with 2-in. Warrentite Bitulithic on 5-in. conc. base, East Ave., 10th to 13th St.

Tex., Eldorado—City let contract to Dexter Construction Co. for 7 blocks paving, at approx. \$15,000.

Tex., San Antonio—City, C. M. Chambers, Mayor, let contract to Krusch & Lanham, 330 Menchaca St., for curbing Fredericksburg road extension, at 46 cents per lin. ft. and excavation at 65 cents; I. Ewig, City Engr.

WEST VIRGINIA—State Road Comsn., Geo. E. White, Sec., Charleston, let contracts for 3 road projects in following counties:

Hancock—1.5 mi. grading, conc. paving, Chester-Newell road, A. Shuttles, 213 McKinney St., Fairmont, \$60,524;

Greenbrier—45,000 ft. wire rope guard rail complete in place, F. M. Yeater, Smithfield, 29 cents per ft.

Mingo-Logan—57,000 ft. wire rope guard rail complete in place, A. W. Burns, Columbus, Ohio, 30.8 cents per ft. 1-15

Sewer Construction

Sewer construction in LAND DEVELOPMENT projects involves the expenditure of large sums of money. Under that classification details of these improvements are reported.

Ala., Prichard—See Roads, Streets, Paving.

Fla., Jacksonville—City, Elmo W. Acosta, Chrm. City Comsn., receives bids Feb. 18th for storm sewers and materials. See Want Section—Bids Asked.

Ky., Winchester—Bishop, Robinson & Co., Huntington, W. Va., has contract at \$98,000 for sanitary sewers in outlying districts. 12-25

La., Donaldville—J. B. McCrary Co., Atlanta, Ga., has contract at \$113,045, for complete sanitary sewer system; install 12 miles of vit. clay mains, 1 mile of c. i. mains and 2 miles of conc. mains; install 2 electric sewer pumps; J. W. Billingsley, Engr., Interstate Bank Bldg., New Orleans. 1-29

La., Gretna—City, plans installing sub surface drains on Monroe St.

La., Slidell—City, H. G. Fritchie, Mayor, votes Feb. 10 on \$40,000 bonds for sewers, Sewerage District No. 1. 1-15

Md., Baltimore—Bd. of Awards receives bids Feb. 11 for sewers, Storm Water Contr. 154.

Md., Frostburg—City, Max Mathias, City Engr., compiled estimates on construction sewers section of Park Ave., McCulloh and Green Sts.; cost \$15,000.

S. C., Greenville—Greater Greenville Sewer Dist. will probably vote March 3 on \$525,000 bonds for sewers Parker district between Mills Ave. and Paris Mountain Rd. 1-22

Tex., Dallas—City, E. M. Belk, Ch. Clk., advises are working at this time on program for storm sewers that will total \$1,600,000; Benham Engineering Co., Perrine Bldg., Oklahoma City, Okla., retained as consulting engi-

neers; report to be ready in about two weeks when bids will be advertised; principal item at this time are: Mill Creek pressure main, cost \$300,000; Peaks Branch pressure main, cost \$300,000; Peaks Branch drainage district, cost \$500,000; miscellaneous items, \$100,000; Jno. M. Young, City Engr. 1-29

Tex., Houston—City, J. M. Nagle, Engr., construct sewer vicinity James S. Hogg Junior High School; cost \$13,500.

Tex., Houston—C. K. Horton & Co., 2202 Clay St., reported, low bidder at \$17,000 for sanitary sewers in Denver Addition.

Tex., Marshall—City authorized 225 ft. sanitary sewer extension on W. Rusk St. between Bishop and Young Sts.

Va., Lynchburg—City will construct with city forces \$30,000 outfall sewer extension. 1-29

Street Railways

Tex., Fort Worth—City, O. E. Carr, Mgr., will lay street car tracks through proposed Jennings Ave. underpass and over Summit Ave. viaduct and lease to Northern Texas Traction Co.

Telephone Systems

Ala., Mobile—WNN, Tropical Radio Tel. Co., granted construction permit by Radio Comsn., Washington, for new transmitter.

Fla., Hialeah—Wan Tropical Radio Telegraph Co. granted construction permit to install 2 new transmitters.

Md., Cumberland—WTBC, Asso. Broadcasting Corp., granted license from Federal Radio Comsn., Washington, covering construction permit for installation new equipment. 1-8

Md., White Hall—Chesapeake & Potomac Telephone Co., 108 E. Lexington St., Baltimore, filed application with Interstate Commerce Comsn., Washington, D. C., for permission to purchase property and equipment of Union Telephone Co. of Baltimore County, consisting of 37 miles of pole lines, and 60 stations; plans renovating lines.

Miss., Natchez—E. A. Fitzgerald, applied to Federal Radio Broadcasting Co., Washington, for construction permit for new station, use 1500 ko., 100 w.

Mo., Kansas City—Graybar Electric Co., 420 Lexington Ave., New York, reported, has contract for installation of radio transmitter for police communications system; applied to Federal Power Comsn. for permission to install frequency (wave length power) and call letters; operate with 250 watts power.

Mo., Kansas City—Southwestern Bell Telephone Co., Telephone Bldg., St. Louis, reported, expend \$5,000,000 for telephone improvements and additions; main projects are Benton-Chestnut dial cutover and installing equipment for Kansas City-St. Louis and Kansas City-Joplin underground long distance cable; install switching equipment to care for 18,000 dial telephone.

Mo., Robertson—KGTR, Aeronautical Radio, Inc., granted license for broadcasting station by Federal Radio Comsn., Washington.

N. C., Charlotte—W. B. T., Earl J. Gluck, Mgr., reported, applied to Federal Radio Commission, Washington, for authority to establish a 50,000 watt station on Nations Ford Rd.

Va., Norfolk—WTAR Radio Corp., granted construction permit from Federal Radio Comsn., Washington, to move transmitter from Norfolk to Virginia Beach Blvd., 17 miles from city limits and install new equipment. 10-30

West Virginia—Central West Public Service Co., 117 N. 13th St., Omaha, Neb., reported, will on March 1 acquire group of telephone properties in Virginia, West Virginia and North Carolina, consisting of about 16,000 station of which more than half are battery type; negotiations under way for additional properties.

W. Va., Charleston—Chesapeake and Potomac Telephone Co. of West Virginia, J. W. Latham, Ch. Engr., advises following contracts let for telephone building: Foundations, A. G. Higginbotham Co., 702 Charleston National Bank Bldg.; struc. steel, 1135 tons, McClintic-Marshall Co., Oliver Bldg., Pittsburgh, Pa.; steel erection, Detroit Steel Erection Co., 3851 Scotton Ave., Detroit, Mich. 1-22

Textile Mills

N. C., Marion—Marion Knitting Mill, W. W. Neal, Sr., Pres., constructing addition to plant; 2 story; brick; work started on grading site; addition will provide room for offices; storage room and second floor for mill; install number of loopers.

N. C., Maiden—Sherwood Mills, Inc., capital \$100,000, chartered; C. R. Ocard, R. L. Sullivan.

N. C., Wilmington—Seaboard Public Service Co., Alexandria, Va., reported, having plans prepared by Robert & Co., Engrs., Bona Allen Bldg., Atlanta, Ga., for electrification of Delgado Mills, lately acquired; install additional machinery.

Tex., Bonham—Bonham Cotton Mills, capital \$200,000, incorporated; J. C. Sanders, R. E. Risser. Acquired Bonham Cotton Mill; will reconduction.

Tex., Dallas—Moon Glow Hosiery Corp., 1515 Main St., increased capital to \$10,000.

Water Works

Details of water works improvements in connection with the many LAND DEVELOPMENT operations will be found under that classification.

Ala., Phenix City—Water Bd., W. E. Sherer, Pres., reported, petitioned city to issue \$100,000 water bonds.

Ala., Mobile—City, Herve Charest, Water Works Supt., reported, started work on \$200,000 water works program; lay 100,000 ft. of mains; 3 mile supply main, etc.

Ark., Marion—Arkansas Power & Light Co., Pine Bluff, plans installing complete water works system for village of Marion; cost \$40,000; complete in 90 days.

Ga., Newnan—W. M. Haynie, Newnan, has contract for remodeling pumping station; 30x50 ft.; 1 story; conc. floor; conc. foundation; Spanish tile roof David S. Cutting, Jr., Designer, 1302 Healey Bldg., Atlanta.

Ky., Cloverport—City, O. E. Ferguson, Mayor, will let contract about Feb. 4 for \$55,000 water works improvements; install 8, 6, 4, 2-in. pipes; wells and 75,000-gal. reservoir; Green Engineering Co., Engrs., Paducah.

Ky., Louisville—Alvord, Burdick & Howson, Engrs., 20 N. Wacker Drive, Chicago, Ill., engaged to prepare plans for \$1,500,000 filtered water reservoir to be constructed for Louisville Water Co.; will probably be completed in 3 months; about two-thirds of expenditure will be for pipes.

La., New Orleans—Following have sub-contracts on pumping station No. 7, Orleans Canal and Florida Walk, Gervais F. Favrot, Cont., Balter Bldg.; Barnes Electric Construction Co., Ltd., 513 Gravois St., for electric installation; Griswold Lumber Co., Inc., 1500 Washington Ave., for lumber; Treigle Sash Factory, Inc., 3001 Jackson Ave., for millwork; A. S. Chevis, 4224 S. Rochebleve St., for plumbing; Clifford F. Favrot Supply Co., 2530 Perdido St., for roofing; Gibbons & Gordon, Inc., 532 Canal St., for hardware.

Md., Baltimore—Following contractors estimating on water conduit Montebello to Druid Hill Park, bids opened Feb. 18: Ligon & Ligon, 3310 Ridgewood Ave.; M. & J. B. McHugh, 3716 Sequoia Ave.; Whiting Turner Construction Co., Stewart Bldg.; Merritt-Chapman & Scott Corp., Fidelity Bldg.; Frank Carozza & Son, 2444 N. Charles St., all of Baltimore; Silas Mason Co., Philadelphia, Pa.; J. A. Lapool Corp., Albany, N. Y.; following estimating on equipment: D. C. Elphinstone, Inc., 120 S. Calvert St., Baltimore; Lock Joint Pipe Co., Ampere, N. J.

Md., Frostburg—J. Paul Blundon, Consol. Engr., completing survey of water situation to be presented Feb. 10 for improvements; J. P. Wells, Consol. Engr., Rochester, N. Y., submitted detailed report covering gravity flow project through Savage Mountain; impound 160,000,000 gals.; estimated cost \$248,000.

Miss., Meridian—H. L. Lancaster, Steward, East Miss. State Hospital, receives bids Feb. 10 for 600 ft. of 4-in. and 32,000 ft. of 3-in. standard c. i. water pipe.

Mo., Hollister—City, H. C. Hofmeister, Mayor, plans constructing pumping plant and conc. reservoir; 25,000 ft. of 6, 4 and 2-in. pipe; Black & Veatch, Engrs., Mutual Bldg., Kansas City. See Want Section—Machinery and Supplies.

Mo., Kansas City—City, H. F. McElroy, City Mgr., reported, plans immediate construction of work on \$1,000,000 water main extensions.

Okla., Pawnee—City, reported, plans installing Diesel engine unit in water works plant; cost \$25,000.

Okla., Lawton—City, F. E. Lawrence, Engr. Dept., advises have not let contract for reconstruction of filter plant; plans for this work not available now; contracts for pipe line, elevated tank and tower, etc., lately noted.

S. C., Lyman—Pacific Mills, reported, let contract to J. L. Von Glahn Co., Montgomery Bldg., Spartanburg, for addition to filtration plant.

Tex., Corpus Christi—City has report by Henry E. Elrod, 1925 Wentworth St., and Robt. J. Cummins, Bankers Mortgage Bldg., Engrs., Houston, for repairing of La Fruta dam at Lake Lovenskiold; cost \$410,000; will probably have plans prepared for reconstruction.

Tex., El Paso—City, S. F. Crecelius, City Engr., let contract for earthwork and incidental structures for Brown St. reservoir to George Orr, R. F. D. No. 1, Box 127; principal items of work are 101,000 cu. yds. of earth excavation, rolled in dam and some pipe lines and small conc. structures; bids for conc. covering and lining for reservoir will be called for upon completion of preliminary work.

Tex., Wichita Falls—City, W. E. McBroom, City Clk., opens bids Feb. 24 for filtration plant extensions and improvements to old system; cost \$1,000,000; Montgomery & Ward, Engrs., Harvey-Snyder Bldg., Wichita Falls. Black and Veatch, Const. Engrs., Mutual Bldg., Kansas City, Mo. See Want Section—Bids Asked.

Va., Bluefield—City, Eddie Ruehl, City Mgr., reported, plans installing filtering plant; \$40,000 bonds available.

Va., Bowling Green—Town, L. E. Martin, Mayor plans voting on issuance of \$15,000 sinking fund water bonds.

Woodworking Plants

Ark., Little Rock—Hudson & Dugger Co. of Arkansas, P. O. Box 65, Maury Jenkins, Mgr., will rebuild burned tight barrel circled heading mill, with daily output 40000 sets; install 75x100 galvanized iron finishing plant and four brick kilns, each 200x20 ft. See Want Section—Machinery and Supplies.

La., Opelousas—Thistlethwaite Lumber Co., John Thistlethwaite, reported, plans installing sweet potato box making plant.

Mo., St. Louis—Charles H. Peck Estate, care Gustave Stamm, 208 N. Broadway, soon ready for bids for improvements to 5-story and basement office and warehouse, 121-27 S. 7th St.; Hellmuth & Hellmuth, Archts., Commercial Bldg.

S. C., Georgetown—Phenix Furniture Co., will be merged into Brickman Furniture Co.; manufacture rustic hickory furniture. See Want Section—Machinery and Supplies.

Va., Emporia—Virginia Box & Panel Co., Inc., capital \$60,000, incorporated; R. W. Jordan.

FIRE DAMAGE

Ala., Cochran—R. J. Hansen's residence.

Ala., Pine Level—D. P. Crocker's residence.

BUILDING NEWS
BUILDINGS PROPOSED

Association and Fraternal

La., New Orleans—City receives bids until Feb. 9 at office City Purchasing Agt., Room 24, City Hall, for repairs to American Legion Home, Royal and Conti Sts.; steel frame, new built-up roof, masonry repairs; M. B. DePass, City Archt.; following contractors estimating: J. A. Petty & Sons, Inc., Audubon Bldg.; J. M. Werling, 2909 St. Bernard Ave.; Alvin M. Fromberg, Q. & C. Bldg.; Reinman Construction Co., Maritime Bldg.; L. J. Woodworth, 6017 Vicksburg St.; Wm. Wallace, Pere Marquette Bldg.; J. V. & R. T. Burkes, Inc., Amer. Bk. Bldg.; Chas. Gibert Construction Co., Amer. Bk. Bldg.; Frank P. Duferchou, 4227 Fontainebleau Drive; Caldwell Bros., 816 Howard Ave.; J. A. Haase, Jr., 916 Union St.; H. W. Bond & Bro., 816 Howard.

Md., Baltimore—Baltimore Forest No. 45, Tall Cedars of Lebanon, Archie C. New,

Ala., Wetumpka—State Prison; loss \$160,000.

Ark., Arkadelphia—John Wood's residence, Hill Crest; Geo. Key's residence, 12th St.; loss \$9500.

Ark., Little Rock—Building, 617-23 E. Markham St., owned by Joe Jung, of Park Hill; loss \$15,000.

Ark., Sherrill—Two buildings owned by L. W. Quattlebaum; building housing C. E. Pickens drug store and postoffice; loss \$50,000.

Ark., Success—Lynch Drug Co.'s building; J. C. Lewis' building; loss \$20,000.

Ga., Augusta—Unity Five & Ten Cent Store, 1100 block Broad St.; loss \$10,000.

Ga., Valdosta—W. M. Oliver & Co.'s store; loss \$60,000.

Ga., Vidalia—J. F. Darby mills and lumber yards.

Ky., Ashland—Independent Order Odd Fellows Bldg., 17th St. and Greenup Ave., occupied in part by Whitton Furniture Co.; loss \$50,000.

Ky., Carrollton—Redrying plant of Northern District Warehouse Corp.; loss \$60,000.

Md., Baltimore—Apartment house at 1206 owned by Mrs. Ella Parr.

Md., Havre de Grace—Northeast River Country Club on Carpenters Point, along Northeast River; loss \$30,000.

Miss., Biloxi—Mrs. W. W. Baltar, Sr.'s residence on beach; loss \$7000.

Miss., Kosciusko—Charlie Allen's residence, Adams St.

Miss., Ruleville—Max Lato's business building; loss \$10,000.

Mo., Kansas City—Portion of plant of American Wiper and Waste Mills, 511 Broadway; loss \$12,000.

Mo., Kennett—Hemphill Lumber Co.'s mill; loss \$40,000.

N. C., Charlotte—Johnston Furniture Co.'s store, 39 S. College St., building owned by Zeke Johnston; loss \$15,000.

N. C., Goldsboro—R. O. Hinnant's residence; Ray Smith's warehouse; loss \$7500.

N. C., Lincolnton—Barn belonging to W. A. Reel in Ironton Township; N. C. Peeler's barn on Morganton-Lincolnton Highway.

Tenn., Athens—Cash and Haul Grocery Co.; Athens Outfitting Co.; Sanders' restaurant; loss \$20,000 to \$50,000.

Tenn., Franklin—Franklin Golf and Country Clubhouse; loss \$30,000.

Tex., Tyler—Goldstein & Brown's store and office building, occupied in part by Naylor's Dept. Store; loss \$125,000.

Va., Hillsville—J. C. Gynn & Son's store; Carroll Hotel; Nuckols Drug Store; Howlett's Furniture Store; Jett's Restaurant; Dr. J. A. Tipton's office and Quesenberry's Dry Goods Store and other buildings; loss \$100,000.

Va., Staunton—Barn at Gaymont, estate of A. M. Prichard, near Staunton.

W. Va., Wheeling—Greig Clothing Store, 1052 Main St.; loss \$20,000.

Chmn., Bldg. Comm., 2 E. Lexington St., receives bids Feb. 16 at office Bernard Evander, Archt., 20 E. Lexington St., for \$100,000 auditorium, rear of 1200-15 N. Charles St.; fireproof, brick, 1 story, basement, mezzanine and balcony, brick, stone and rein. conc., wood, terrazzo, tile and conc. floors, conc. foundation, gypsum and built-up roof, 79.6x115 ft.; following contractors estimating: Cramp & Co., 333 St. Paul St.; Cogswell Construction Co., 406 Park Ave.; C. C. Watts, 407 E. 25th St.; Avon Construction Co., 216 E. Lexington St.; Milton C. Davis, 902 W. 36th St.; Price Construction Co., Md. Trust Bldg.; Tase-Norris Co., Inc., 903 Cathedral St.; C. W. Schmidt, Hearst Tower Bldg.; Thos. Hicks & Sons, 106 W. Madison St.; C. E. Parsley, 1536 N. Gay St.; North-Eastern Construction Co., 6 W. Madison St.; B. F. Bennett Building Co., 123 S. Howard St.; W. E. Bickerton Construction Co., 515 Cathedral; Lacchi Construction Co., Munsey

Bldg.; Consolidated Engineering Co., Inc., 20 E. Franklin St.; Davis Construction Co., 9 W. Chase St.; P. C. Streett Engineering Co., 404 St. Paul St.; H. A. Knott Co., 2107 N. Charles St.; J. L. Robinson Construction Co., 522 Park Ave.; D. M. Andrew Co., 26th and Sisson Sts.; Ralph Simmers, 4518 Arabia Ave.; L. R. Spelshouse, 1621 Frederick Ave. 12-11

Bank and Office

D. C., Washington—Additional prospective estimators on American Red Cross office bldg., bids Feb. 6 by Office of Public Buildings and Public Parks, Room 1931, Navy Bldg.; Lee Paschall, Amer. Natl. Bk. Bldg., Richmond, Va.; J. Henry Miller, Inc., Baltimore, Md.; Davis, Wick, Rosengarten Co., Inc., Dist. Natl. Bk. Bldg.; Malatico Construction Co., Fifth and H Sts., N. W.; Bahen & Wright, 916 R. I. Ave., N. E.; Murch Bros. Construction Co., 2650 Wisconsin Ave., N. W., all Washington; Ellington-Miller Co., 25 E. Jackson Blvd., Chicago, Ill.; W. J. Schirmer Co., 1720 Euclid Ave., Cleveland, O.; Henry E. Barton, Inc., 1713 Sampson St.; Paul Brosy, 2511 Huntington St., both Philadelphia, Pa.; S. W. Shoemaker & Sons, 240 N. Third St., Harrisburg, Pa.; H. R. Blagg Co., 1229 E. Third St., Dayton, O.; Paul Riesen's Sons Co., 1012 Humboldt Bldg., Milwaukee, Wis.; Castor & Castor, 4205 New Utrecht St., Brooklyn, N. Y. 1-29

Tex., Galveston—Gulf, Colorado & Santa Fe Railway Co., F. G. Pettibone, Vice-Pres.-Gen. Mgr., start work early in March on 8-story general office bldg. addition, 25th and Strand Sts.; 11-story tower connecting 2 structures; raise structure on site; fireproof, pile foundation, rein. conc. caps and grade beams, struct. steel and conc. frame, terra cotta exterior, monel metal or bronze finish for entrances, mastic, comp. and terrazzo floors, marble base and travertine walls in elevator lobby, fireproof, steel filing equipment, movable partitions, 29x52-ft. brick and conc. boiler house for steam heating system. 3-27-30

Churches

Ga., Meansville—Baptist Church erect brick bldg.; 2 stories, conc. foundation, wood joist, comp. roof, hot air heat; Daniell & Beutell, Archts., Ga. Sav. Bk. Bldg., Atlanta; drawing plans.

Md., Baltimore—St. Bartholomews P. E. Church, Rev. T. N. Barth, Rector, Ten Hills, receives bids Feb. 10 for \$80,000 to \$90,000 bldg.; stone, 1 story; Mottu & White, Archts., 427 N. Charles St.; following contractors estimating: Davis Construction Co., 9 W. Chase St.; Tase-Norris Co., Inc., 903 Cathedral St.; Willard E. Harn Co., Inc., 2314 Oak St.; Thos. Hicks & Sons, Inc., 106 W. Madison St.; Wm. H. Sands, York Road and Washington Ave.; C. W. Littleton & Son, 4313 Liberty Heights Ave.; Minter Homes Corp., Eastern and Ellwood Ave.; Carl W. Schmidt, Hearst Tower Bldg.; Benj. F. Bennett Building Co., 123 S. Howard St.; G. Walter Tovell, Eutaw and Monument St. 10-2

Mo., St. Louis—Memorial Presbyterian Church, Rev. Russell Paynter, Pastor, erect brick addition; Aegerter & Balley, Archts., Ry. Exch. Bldg.; about ready for bids.

N. C., Winston-Salem—Southside M. P. Church completed foundation for frame bldg., Carrie Ave.; 38x72 ft.; auditorium and 5 classrooms.

Okla., Tulsa—First Christian Church, Rev. E. W. Wilson, Pastor, probably call for bids about March 1 for \$175,000 Sunday school; rein. conc., 2½ stories, cement and wood floors, hollow tile, ventilators, screens, steam heat; Smith & Senter, Archts., Philtower Bldg.

Tenn., Memphis—St. Marys P. E. Church, W. I. Moody, Chmn., Bldg. Comm., plans \$100,000 parish house and school; also erect memorial chapel and cloister; work started on latter; Bowling Green limestone, Gothic type; latter 4 stories; Hanker & Cairns, Archts.

Tex., Dallas—Rev. W. R. Earp, 1018 N. Zang St., organizing Baptist Church; plans building.

Tex., San Antonio—Alamo Heights Presbyterian Church, Rev. Francis J. Davis, Pastor, erect \$40,000 bldg., Corona and Broadway; brick, struct., clay tile and rein. conc.; classrooms in basement; San Antonio Construction Co., Contr., Bldrs. Exch. Bldg.

Tex., Wichita Falls—First Baptist Church, Frederick, erect bldg. to replace structure burned at \$100,000 loss.

Va., Hopewell—Methodist Church erect \$60,000 bldg.; razing present structure.

City and County

Ala., Birmingham—Jefferson County votes March 10 on \$1,500,000 bonds to complete in-

terior and furnish \$3,250,000 court house and construct jail on top of structure; Holabird & Root, Archts., 333 N. Michigan Ave., Chicago, Ill.; Harry D. Wheelock, Asso. Archt., Steiner Bldg., Birmingham; exterior completed by Southern Ferro Concrete Co., 70 Ellis St., Atlanta, Ga. 12-18

Ark., Russellville—Pope County, J. Q. Hill, County Judge, votes Feb. 24 on \$150,000 court house bonds; 3 stories and basement, 48x72-ft. circuit court room to seat 476. 12-11

La., Hahnville—St. Charles Parish Police Jury receives bids until March 2 (extended date) or \$75,000 jail; Geary-Oakes Co. (general) Q. & C. Bldg., New Orleans, La., and Pauly Jail Building Co., 2215 DeKalb St., St. Louis, Mo., additional estimators; other estimators in 1-29; Wm. R. Burk, Archt., Balter Bldg., New Orleans. 1-29

Md., Baltimore—Bureau of Buildings, City Hall; contract lately awarded for Enoch Pratt Library voided by Court; probably call for new bids; structure Classic type, buff limestone, 3 stories and basement, 150x292 ft., 3 book stack levels in basement, steel stacks to hold about 1,500,000 volumes; structure with equipment cost about \$2,400,000; Clyde N. & Nelson Friz, Archts., Lexington Bldg., Baltimore; Edw. L. Tilton and Alfred Morton Githens, Const. Archts., both 141 E. 45th St., New York; C. L. Reeder, Mech. Engr., 915 N. Charles St.; Henry Massart, Struct. Engr., 328 N. Charles St., both Baltimore. 1-8

Mo., St. Louis—Citizens Bond Issue Supervisory Comsn. approved pending ordinance to appropriate \$4,750,000 to complete exterior and partly finish interior proposed Municipal Auditorium; amount would provide interior finish for arena to seat 12,000, small halls, number of committee rooms, 170,000 sq. ft. exhibition space, etc.; completion of music hall to seat 3500 to await supplemental bond issue; plans by Plaza Commission, Inc.; bill to go to Board of Aldermen; if passed, work probably start in Spring.

Mo., St. Louis—Greater St. Louis Museum of Natural History interested in erection of \$2,000,000 5-story museum, Memorial Plaza, structure to be financed by bond issue later.

Tex., Haskell—County Bd. of Commrs. having plans drawn by Butler Co., Archt., Lubbock, for 2 annexes to court house; 32x68 ft. each, 3 stories; remodel present structure; new heating plant; native stone; \$100,000.

Tex., Menard—Menard County Bd. of Commrs., Joe Matthews, County Judge, receives bids March 9 for \$100,000 court house and jail; monolithic conc., 4 stories; Withers & Thompson, Archts., 201 Holmes Bldg., Fort Worth. 1-29

Dwellings

D. C., Washington—B. P. Evans have permit for 4 brick dwellings, 3625-33 Ingomar Place, N. W.; 2 stories; total \$25,000.

D. C., Washington—Major L. C. Crawford, Washington Bldg., erect brick or stone residence, Rock Creek Park Estates; Geo. Oakley Totten, Jr., Archt., 808 Seventeenth St.; preliminary plans.

Fla., Miami—H. R. Howell, Deer Park, Hialeah, erect residence, garages, etc., Brickell Ave. near 16th St.; Victor H. Nelsonbogen Archt., 925 Lincoln Rd., Miami Beach.

Ga., Austell—Clark Thread Co., John B. Clark, Pres., Newark, N. J., probably let contract about March 10 (lately noted Feb. 10) for 75 operatives' cottages, in connection with mill development; J. E. Sirrine & Co., Engrs., Greenville, S. C.; Engrs. advise plans in very preliminary stage. 1-29

Md., Baltimore—Everett R. Morse, Lexington Bldg., purchased site, St. Albans Way and Belvedere Ave., Homeland; erect residence.

Md., Baltimore—Saml. Smulian, 3721 Belle Ave., has drawn plans for stucco and shingle duplex; 2 stories, 45x35 ft., oil burner, hot water heat; probably take bids in Spring.

Md., Baltimore—Miss Mary Parlette receives bids Feb. 9 at office Bayard Turnbull, Archt., 328 N. Charles St., for 2½-story brick residence, Bellona Ave. near Charles St.; following contractors estimating: Ralph MacMurray, 39th St. and Old York Rd.; L. L. Chambers, Inc., 36th St. and Roland Ave.; Clarence L. Jarvis, 3604 Woodbine Ave.; Thos. Hicks & Son, 106 W. Madison St.; C. W. Littleton & Sons, 4313 Liberty Heights Ave.; Willard E. Harn, 2314 Oak St.; Tase-Norris Co., Inc., 903 Cathedral St.; Ed A. Cullings, 698 Gladstone Ave.; Henry T. Sorrell, 4112 Kathlam Ave., all Baltimore; W. H. Sands, Towson.

Md., Baltimore—Milburn Realty Co., 1320 N. Charles St., erect 10 brick dwellings, 501-19 S. Tolna St.; 2 stories; total \$25,000.

Md., Easton—Glenn Stewart, Cape Centaur House, plans English castle type addition to residence; fireproof, brick, conc. and steel, 30x30 ft., 3 stories, 3 baths; Wm. Draper Brinckloe, Archt.; Geo. A. Poole, Russell Summers and Farmer & Comegys, requested to estimate.

Md., Monkton—Bryce Wing erect residence; Jas. W. O'Connor, Archt., 162 E. 37th St., New York; ready for bids about Feb. 14.

Md., Ruxton, Baltimore—Geo. H. Engeman, Green Hall Apt., St. Paul and 33rd Sts., Baltimore, erect brick and stone residence, Boyce Ave.; 2½ stories; Arthur C. Holden, Archt., 232 Madison Ave., New York; probably take bids in Fall.

Miss., Corinth—Jim Humphreys erect residence, West Corinth; brick purchased.

Miss., Corinth—B. V. Fowler erect residence, Lee Highway; brick purchased.

Miss., Corinth—J. A. Essary erect residence, Lee Highway; brick purchased.

Mo., St. Louis—Arhen Realty & Investment Co. erect brick dwelling, Bel Nor; 2 stories and basement, 37x30 ft.; Julius E. Tarling, Archt., 2806 W. Grand Blvd.; bids in.

Mo., St. Louis—Albert Ullrich, 4802 Arsenal St., erect brick dwelling; 1 story and basement, 25x45 ft., oak floors, tile baths, asbestos shingle roof; O. J. Popp, Archt., 1528 Arcade Bldg.

Mo., St. Louis—St. Louis Contracting Co., 4417 Clayton Rd., erect stone dwelling, Pasadena Hills; 1 or 2 stories; Wm. P. McMahon Archt., Buder Bldg.; preliminary plans.

Mo., St. Louis—Taylor S. Carter, Normandy, erect frame residence; 2 stories, basement and attic, 108x29 ft.; Beverly T. Nelson, Archt., 403 Chemical Bldg.; bids in.

Mo., St. Louis—Wm. E. Duffy, 5003 Bancroft Ave., erect residence, 6530 Delor St.; brick, 2 stories and basement, 36x33 ft.; G. B. Robertson, Archt., care Cyrus Crane Wilmore Organization, Inc., Donovan and Nottingham Aves.

Mo., St. Louis—Dr. M. H. Post, care Smith & Gauger, Archts., 514 Louderman Bldg., erect brick residence, Fordyce Lane near Ladue Rd.; 2 stories and basement, about 90x30 ft.; bids in.

N. C., Durham—Eric H. Copeland has permit for \$15,000 residence, Markham Ave. near Roxboro St.; frame, 8 rooms.

N. C., Hickory—E. L. Flowers, care Southern Desk Co., receiving bids for \$14,000 residence, 17th St.; Georgian type; Martin L. Hampton, Archt., John Wooten, Mr., Hickory. 11-27

Okla., Oklahoma City—Marquand Huckins has low bid for \$10,000 residence from John Putney; Thos L. Sorey, Archt., Perrine Bldg.

S. C., Newberry—Z. F. Wright erect brick veneer residence; 1 story, 6 rooms, shingle roof; Ye Planry, Inc., Archt., 1413½ Live Oak St., Dallas, Tex.

Tenn., Memphis—Manson Gilliland, 925 Faxon Ave., has low bid from W. Phelps, 924 N. Auburndale St., for residence, Jefferson Park sub-division; English type, brick veneer, 1 story, 30x55 ft.; Polk W. Agee, Archt., 147 S. Third St.

Tex., Dallas—Dines Building Co., 6860 Lakewood St., has permit for brick veneer dwelling, 6621 Lakewood St.; 9 rooms; \$110,000.

Va., Charlottesville—Dr. Edwin P. Lehman erect brick residence; 2½ stories, casement windows, orna. iron, slate roof; Marshall Swain Wells, Archt.; bids in.

Government and State

Ala., Maxwell Field, Montgomery—Prospective estimators on Air Corps warehouse, machine shop, and assembly shop, Maxwell Field, bids Feb. 17 by Constructing Quartermaster: H. H. Brown, Dothan, Ala.; A. J. Honeycutt Co., Martin Bldg.; Smallman-MacQueen Construction Co.; D. T. Underwood, Pioneer Bldg.; Johnson Construction Co., 512 U. Sixth St.; E. C. Coston Construction Co., 3019 Sixth Ave., S.; Ingalls Iron Works Co., 720 Fourth Ave., S.; Moore & Woolley, Inc., 713 S. 27th St.; Bagby Elevator & Electric Co., 3117 Third Ave., South; H. H. Robertson & Co., Protective Life Bldg., all Birmingham, Ala.; T. M. Gorris, Box 441; Hodgson-Jones Construction Co., N. Perry St.; Samford Bros., Inc., 301 Washington Ave.; Standard Electric Machine Works, 320 Catona St., all Montgomery; W. E. Tucker, Camp Hill, Ala.; R. E. Sundberg Constr. Co., 269 N. Royal St., Mobile, Ala.; Batson-Cook Co., West Point, Ga.; Fiske-Carter Construction Co., Masonic Temple Bldg., Greenville, S. C.; Decatur Iron & Steel Co., Decatur, Ala.; Southern Engineering Co., Little Pittsburgh; A. Lloyd Goode, 2435 Cherokee Road; Goode Construction Co., 11 E. Fifth St.; Harrison-Wright Co., 4 W. Third St., all Charlotte, N. C.; Hartensline-Zane Co., Inc., 225 Broad-

way, New York; Service Co., Inc., 1522 First Ave., Columbus, Ga.; Worsham Bros., Empire Bldg., Knoxville, Tenn.; A. K. Adams & Co., 542 Plum St., N. W.; Flagler Co., Red Rock Bldg.; Smith-Pew Construction Co., 435 Irvin St., N. E.; Chestnut & Johnson, 203 Peters Bldg., all Atlanta, Ga.; Crane Co., 1225 I St., Washington, D. C.; G. A. Hanson Co., First Natl. Bk. Bldg., Tampa, Fla.; Kistler Plumbing & Sheet Metal Works, Alexander City, Ala.; Johns-Manville Corp., Locust and 17th Sts., St. Louis, Mo.; Ogletree Construction Co., 11th St., Anniston, Ala. 1-29

D. C., Washington—Treasury Dept., Jas. A. Wetmore, Act. Supvg. Archt., receives bids Feb. 9 for scale model of \$865,000 Public Health Service bldg.; J. H. DeSibour, Archt., 1200 15th St., N. W. 1-15

D. C., Washington—Architect of The Capitol, David Lynn, opens bids Feb. 26 for excavation and foundations for U. S. Supreme Court Bldg., E. Capitol St., Maryland Ave., First and Second Sts.; \$8,240,000, Corinthian type, 385x304 ft., central section, 4 stories, west front 3 stories and remaining sections lower; fireproof, stone, brick; Cass Gilbert, Archt., 244 Madison Ave., New York; drawings on or after Feb. 5. 12-4

Fla., Kissimmee—Following prospective estimators on \$80,000 post office, bids Feb. 17 in duplicate by Treasury Dept., Jas. A. Wetmore, Act. Supvg. Archt., Washington, D. C.; Williams Construction Co.; Grahn Construction Co., both Red Rock Bldg., Atlanta, Ga.; Jones Bros. Co., Wilson, N. C.; James I. Barnes, Logansport, Ind. 1-29

Fla., Lake Worth—Congress passed bill to establish Coast Guard station at or near Lake Worth.

La., Opelousas—Treasury Dept., Jas. A. Wetmore, Act. Supvg. Archt., Washington, D. C., complete plans and call for bids in few weeks for \$85,000 annex; 3 stories, 37x74 ft. 6-26

La., Shreveport—Constructing Quartermaster, Barksdale Field, Capt. Geo. E. Lamb, receives bids March 5 for quartermaster warehouse, maintenance dept. warehouse and garage bldg.; total \$100,000; struct. steel to be furnished by Government; contract let to R. B. Skannal, Shreveport, for road work. 5-23-29

Md., Cambridge—Treasury Dept., Jas. A. Wetmore, Act. Supvg. Archt., Washington, D. C., opens bids in duplicate Feb. 26 for remodeling and enlarging post office; drawings from office Supvg. Archt.

Md., Chestertown—Treasury Dept., Jas. A. Wetmore, Act. Supvg. Archt., Washington, D. C., will select site for post office; Wm. G. Smyth, Postmaster.

Mo., Aurora—Treasury Dept., Jas. A. Wetmore, Act. Supvg. Archt., Washington, D. C., has low bid at \$58,100 from Rosen & Fischel, Inc., 11 S. La Salle St., Chicago, Ill., for post office. 1-15

Mo., West Plains—Treasury Dept., Jas. A. Wetmore, Act. Supvg. Archt., Washington, D. C., has low bid at \$52,447 from Rosen & Fischel, Inc., 11 S. La Salle St., Chicago, Ill., for post office. 1-22

Mo., Sikeston—Treasury Dept., Jas. A. Wetmore, Act. Supvg. Archt., Washington, D. C., receives bids Feb. 16 for post office; James I. Barnes, Logansport, Ind., estimating. 1-22

N. C., Edenton—Prospective estimators on post office, bids in duplicate Feb. 13 by Treasury Dept., Jas. A. Wetmore, Act. Supvg. Archt., Washington, D. C.; E. E. Ward & Son, Washington, D. C.; J. C. McCauley Co., Inc., Bona Allen Bldg., Atlanta, Ga.; James L. Barnes, Logansport, Ind.; Williams Construction Co., Atlanta. 1-22

Okla., Frederick—Treasury Dept., Jas. A. Wetmore, Act. Supvg. Archt., Washington, D. C., opens bids in duplicate March 4 for post office, etc.; drawings from office Supvg. Archt. 7-31

S. C., Dillon—Treasury Dept., Jas. A. Wetmore, Act. Supvg. Archt., Washington, D. C., has low bid at \$43,595 from Algernon Blair, First Natl. Bk. Bldg., Montgomery, Ala., for post office. 1-22

Tenn., Lookout Mountain—Constructing Quartermaster, Fort Oglethorpe, Ga., receives bids Feb. 24 for caretaker's quarters and comfort station, Point Park.

Tex., Memphis—Treasury Dept., Jas. A. Wetmore, Act. Supvg. Archt., Washington, D. C., erect \$65,000 post office; site surveyed.

Tex., Wichita Falls—Treasury Dept., Jas. A. Wetmore, Act. Supvg. Archt., Washington, D. C., will have plans drawn by Voelcker & Dixon, Inc., Architects, Perkins-Snyder Bldg., Wichita Falls, \$500,000 to \$600,000, for Federal Bldg., Lamar St. near Tenth St.; preliminary sketches probably ready for approval in about 2 weeks; may be ready for bids in 60 to 90 days. 11-13

Va., Langley Field, Hampton—Constructing Quartermaster, Fort Monroe, has low bid at \$539,000 from Batson-Cook Co., West Point, Ga., for 4 barrack bldgs., Langley Field. 1-22

Hospitals, Sanitariums, Etc.

La., New Orleans—Treasury Dept., Jas. A. Wetmore, Act. Supvg. Archt., Washington, D. C., probably call for bids about Feb. 15 for \$500,000 addition to Marine Hospital; 3-story nurses' home to accommodate 60, 2-story bachelor officers' quarters, accommodate 30, 5 two-story double officers' quarters; all brick.

Tenn., Nashville—City receives bids Feb. 16 at office Asmus & Clark, Archts., Nashville Tr. Bldg., for remodeling and new units to Nashville General Hospital; brick, steel and conc., cut stone trim, fireproof, 4 stories, 176x135 ft.; nurses' home addition Colonial type, 3 stories, 42x86 ft., 36 rooms, brick, cut stone trim; remodeling to include rein. conc. floor work covered with terrazzo marble and rearrangement of partitions; nurses' call system; 2 elect. elevators; Southern Ferro Concrete Co., Atlanta, Ga., estimating. 11-20

Tex., Beaumont—Hotel Dieu Hospital, Emmett and Sabine Pass Sts., operated by Sisters of Charity of Incarnate Word, Mother M. Placidus, Superior General, Houston, about ready to start work on nurses' home, chapel, sisters' home, hospital wing and remodeling of hospital; \$500,000.

Hotels and Apartments

Ala., Montgomery—Capital City Hotel Co., Dr. S. D. Suggs, Pres., plans 100-room addition to Jefferson Davis Hotel; \$200,000.

Ark., Little Rock—Hotel Fayette, Frank Byrnes, Mgr., soon start work on remodeling hotel; improvements to include installation 125 addition shower baths, redecorate 100 rooms, new rugs, upholstering for lobby furniture, plate glass tops for dressers.

La., Baton Rouge—Interstate Hotel Co., owner of Hotel Heidelberg, receives bids Feb. 10 for \$200,000, 7-story, rein. conc., steel, brick, stone trim, 144-room hotel opp. Hotel Heidelberg, to be operated as annex; Edw. F. Neild, Archt., City Bank Bldg., Shreveport; following contractors estimating: Knapp & East, Kaufman Bldg., Lake Charles; K. C. Wilson, Slattery Bldg.; Ashton Glassell, 260 Cadillac St., both Shreveport.

Md., Baltimore—Max H. Bernstein, St. Paul and Madison Sts., has low bid from Avon Construction Co., 216 E. Lexington St., for additions to Hotel Abbey; 2 and 4 stories, 27 x26 and 27x29 ft., brick, slate roof, tile baths, wood floors, steam heat; J. C. Spedden, Archt., 2715 Harlem Ave. 1-22

Mo., St. Louis—R. H. Meyer, care Chas. R. Greene, Archt., Wainwright Bldg., erect 3-story and basement, 97x36 ft., brick, 12-apartment, Bates and Dewey Sts.; rubble stone foundation, terra cotta and cut stone trim, hardwood floors, steam heat, comp. roof; 12-car garage in rear.

Tex., Longview—Gregg Hotel erect \$125,000 4- or 5-story, brick, 64-room addition; plans prob. by Edw. F. Neild, Archt., City Bank Bldg., Shreveport, La.

Va., Hopewell—S. T. Anthony, 721 W. Broadway, plans to start work in 60 days on \$150,000 hotel, Randolph and Cawson Sts.

Miscellaneous

D. C., Brookland—Franciscan Monastery erect 2-story, brick and conc. block church hall; 113x66 ft.; Murphy & Olmsted, Archts., 1413 H St., N. W., Washington; bids in.

Mo., Bagnell—Lake of the Ozarks Country Club, J. Kinney, Pres., Commerce Bldg., Kansas City, start work about March 1 on \$12,500, one story, log slab and stone clubhouse; furnishings and equipment, \$10,000; oak floors, electric refrigerators, incinerator, asphalt shingle roof; Clarence E. Shepherd, Archt., Huntzinger Bldg., Kansas Bldg. See Want Section—Building Material and Equipment. 1-29

Md., Glencoe—Duncan McCulloh, Jr., erect inn on York Road, near Baltimore; Bayard Turnbull, Archt., 328 N. Charles St., Baltimore; bids in.

Miss., Brookhaven—Frank H. Hartman erect 2-story brick building on S. Whitworth Ave. to replace Hartman Bldg., recently burned at loss \$75,000, occupied by Hartman Undertaking Co. and Bertha's Flower Shop; E. McCormick, Archt.

Mo., St. Louis—John C. Meyers, 3640 Washington Blvd., advises that proposed \$250,000 planetarium is still in tentative state. 10-9

Okla., Tulsa—Mrs. Lucille Thomas, reported, erect \$80,000 steel and conc. Western League Baseball Park and Grandstand.

Okla., Tulsa—Tulsa State Fair, John T. Kramer, Sec.; \$500,000 bonds recently voted by Tulsa County for bldgs., etc.; will select architects and engineers in about 30 days after approval of bonds by Attorney General. 11-20

Va., Richmond—Cavalier Athletic Club, Allen J. Saville, Electric Bldg., Lee Paschall, American National Bank Building, and others, incorporated, to erect \$600,000, 7-story athletic club building; features to include bowling alleys, swimming pool, gymnasium, basketball court, handball courts, Turkish bath parlor, etc.

Railway Stations, Sheds, Etc.

Ga., Atlanta—Atlanta & West Point Ry., S. R. Young, Engr., Hunter St., S. E., has low bid at \$8480 from Gates Brothers, College Park, for 1-story, 24x100 ft., brick, freight depot on Fair St.; tile roof. 1-22

Tex., El Paso—Gulf, Colorado & Santa Fe R. R., K. B. Duncan, Ch. Engr., plans \$125,000 freight office and warehouse building.

Schools

Ala., Gadsden—Etowah County Bd. of Education, W. V. Luckie, Supt., receiving bids for John S. Jones School, Rainbow Drive 7 miles from Gadsden, to replace burned structure; field stone, plain stone, brick, stucco or slag-tex. 6 rooms.

Ark., Jonesboro—Jonesboro A. & M. College, V. C. Kays, Pres., reconstruct building recently damaged by fire at loss \$150,000.

Ark., Marked Tree—Marked Tree Special School Dist. No. 1, care Poinsett County Bd. of Education, W. R. Payne, Pres., Harrisburg, has plans by Estes W. Mann, Cotton Exch. Bldg., Memphis, Tenn., for \$36,000, 2-story and basement, 101x56 ft., brick and conc. junior high school; built-up roof, wood floors. 11-20

Ark., Monticello—Monticello A. & M. College, Dean James H. Hutchinson, plans brick training school bldg.; accommodate 600.

Fla., Winter Haven—Rollins College, Hamilton Holt, Pres., erect chapel, gift of Mrs. Geo. E. Warren, Boston, Mass., and Mrs. Homer D. Gage, Worcester, Mass.; to be called Knowles Chapel; install organ; Spanish type, colored stucco, artificial stone trim, tile roof; Cram & Ferguson, Archts., 248 Boylston St., Boston; Kiehnel & Elliott, Constl. Archts., Seybold Bldg., Miami, Fla.

Ky., Adairville—Logan County Bd. of Education, B. N. Beauchamp, Supt., Russellville, having plans prepared by John Waller, Hopkinsville, for \$35,000, 2-story, brick and stone high and grade school; hardwood floors, metal roof; furnishing, equipment, etc., \$5000. 1-8

Ky., Louisville—Bd. of Education, Samuel D. Jones, Bus. Dir., has adopted following building program schedule of buildings to be erected out of money received from sale of \$3,000,000 school improvement bond issue: James Russell Lowell School, noted under Contracts Awarded, first building scheduled; others will be Jacobs Addition School, Wheeler Ave., \$300,000, ready for bidders Feb. 22; Oakdale School, 8th and Denmark Sts., \$300,000, ready for bidders April 3; Theodore Ahrens Trade School Addition, First St. between Walnut and Chestnut Sts., \$300,000, bids May 8; Nannie Lee Frayser, Larchmont and Nevada Sts., \$200,000, bids June 12; addition to J. M. Atherton High School for Girls, Morton and Rubel Aves., \$300,000, ready for bidders July 17; Longfellow School, Duker Ave., \$100,000, bids Aug. 21; J. Stoddard Johnston School Addition, Bradley Ave. and Atwood Sts., \$100,000, bids Sept. 25; addition to either, Hazelwood or Brandeis School, \$100,000, bids Oct. 31; J. M. Colley, Archt., 8th and Chestnut Sts. 12-18

Ky., Wurtland—School Bd. erect 4-room school; \$20,000; bids in.

La., New Orleans—Tulane University erect \$13,000 hydraulic laboratory for use of engineering students; plans by Prof. Wm. B. Gregory, of Hydraulic Dept.

La., New Orleans—Sacred Heart Roman Catholic Church receives bids Feb. 10 for 3-story, 70x80 ft. brick school addition, Canal St., between S. Lopez and S. Rendon Sts.; cast stone trim, tile roof, wood floors; Emile Well, Inc., Archts., Whitney Bank Bldg.; Lionel F. Favret, Louisiana Bank Bldg., estimating.

La., Shreveport—Following contractors estimating on \$75,000, 2-story, rein. conc., brick and stone trim, 15-classroom Jewella School, bids Feb. 11 by Caddo Parish School Bd., E. Weldon Jones, Supt.; Ashton Glassell Co., 260 Cadillac St.; W. M. Werner, Commercial Bank Bldg.; F. E. Griffin, 3010 Creswell St.; K. C. Wilson, Slattery Bldg., all Shreveport; F. C.

McClenahan, Homer; Clarence W. King, Architects, Giddens-Lane Bldg. 1-15

Md., Baltimore—Following contractors estimating on 2-story brick school No. 50, on City College grounds, bids Feb. 11 by Bd. of Public Improvement Comsn., H. J. Leimbach, Supv. Engr.: Charles L. Stockhausen, 33 S. Gay St.; W. E. Bickerton, 515 Cathedral St.; David M. Andrew Co., 26th and Sisson Sts.; J. L. Robinson Construction Co., 522 Park Ave.; Mueller Construction Co., 3304 Barclay St.; North-Eastern Construction Co., 6 W. Madison St.; Wm. H. Emory, Jr., Archt., Baltimore Trust Bldg.; Henry Massart, Struc. Engr., 324 Charles St.; Henry Adams, Mech. Engr., Calvert Bldg. 1-22

Md., Baltimore—Bryn Mawr School, Miss Amy Kelly, Prin., Cathedral and Preston Sts., receives bids Feb. 10 for \$40,000 building, Lake Ave. and Charles St. Ave., first unit of group of 8 buildings planned; stone, fireproof, slate roof; Palmer & Lambdin, Archts., 513 N. Charles St.; Van Rensselaer P. Saxe, Struct. Engr., 217 N. Calvert St.; following contractors estimating: Thos. Hicks & Sons, 106 W. Madison St.; E. A. Cullings, 698 Gladstone Ave.; E. G. Turner, 2133 Maryland Ave.; T. V. Morgan, 10 E. Fayette St.; North-Eastern Construction Co., 6 W. Madison St.; L. L. Chambers, 36th St. and Roland Ave.; C. K. Wells, 3538 Old York Road. 1-1

Mo., Jefferson City—St. Peters Parish, Rt. Rev. Msgr. Jos. Sellinger, Pastor, erect 2-story brick, fireproof addition to school, High St. near Broadway; Henry P. Hess, Archt., Ambassador Bldg., St. Louis; bids in.

Mo., Joplin—Bd. of Education, Dr. J. J. Barnett, Pres., selected Thomas W. Williamson & Co., Topeka, Kans., as architects and B. F. Cook, 713 Linwood Blvd., Kansas City, as consulting engineer for \$250,000 North Junior High School. 10-2

Okla., Greenfield—Bd. of Education, Will Barnett, Clk., rebuild burned school; \$30,000; plans by Hugh W. Brown and C. F. Drury, Oklahoma City.

Tenn., Whiteville—School Bd., M. L. Jones, plans \$40,000, 2-story brick high school to replace burned structure.

Tex., Mercedes—Mercedes Ind. School Dist. Bd. of Trustees, R. H. Kern, Pres., has low bid from R. W. Briggs & Co., Pharr, for 2-story brick, tile, rein. conc., stone, fireproof high school; cement, tile, terrazzo, wood and linoleum floors; R. Newell Waters, Archt., Weslaco; W. E. Simpson Co., Engrs., Milam Bldg., San Antonio. 1-22

Va., Bent Mountain—See Va., Salem.

Tex., San Angelo—Glenmore School Dist. Trustees, W. M. Holland, ready for bids about Feb. 14 for \$12,000, one-story, 56x54 ft., rein. conc. and brick elementary school; tile roof, oak floors; Anton F. Korn, Archt., Hilton Hotel; Crews C. Alexander, Asso. Archt., San Angelo Natl. Bank Bldg.; votes Feb. 7 on bonds. 1-29

Va., Salem—Roanoke County School Bd., Roland E. Cook, Supt., erect \$200,000 build-

ing to replace Salem High School recently noted burned; soon call election on bonds; also plans \$20,000 school at Bent Mountain. Va., Bent Mountain—See Va., Salem.

Stores

Ga., Atlanta—Frosty Morning Shops, E. George Sanders and O. R. Randall, William-Oliver Bldg., Five Points, erect 4 shops in Atlanta, open for business about April.

Md., Baltimore—Albert Burkner, A. Burkner & Co., 211 S. Charles St., erect 3 stores, 3904 Gwynn Oak Ave.; each 25x70 ft., one-story, brick.

Mo., St. Louis—Edw. J. Gieseler, De Menil Bldg., prepared plans for addition and alterations to store and apartment, 14th St. and St. Louis Ave.; addition, 1 story and basement, 75x65 ft., new store front and interior improvements, terra cotta trim, wood and cement floors, steam heat, tar and gravel roof; owner's name withheld, care Hilmer, Dutton & Kehelebrink Realty Co., Agent, 3519 N. Grand Blvd.

S. C., Beaufort—Mrs. Josephine K. Roberts has permit for two brick stores on Bay St.; 90x25 ft., \$10,000.

Tenn., Athens—Mrs. Essie Horton rebuild Athens Furniture Co.'s store recently destroyed by fire.

Tenn., Athens—S. L. Wilson erect 2-story brick building damaged by fire at loss \$15,000.

Tex., Austin—J. W. & L. Scarbrough, 1801 West Ave., receives bids Feb. 10 (extended date) for 3-story and basement, 160x154 ft., brick, tile, struc. steel, rein. conc., stone and granite addition to E. M. Scarbrough & Sons' store; cement, tile, terrazzo, marble and comp. floors, built-up roof; Wyatt C. Hedrick, Inc., Archt., First Natl. Bank Bldg., Fort Worth; Edwin C. Wriesle, Asso. Archt., Scarborough Bldg. 1-29

N. C., Charlotte—Zeke Johnston rebuild 3-story brick building, 39 S. College St., occupied by Johnston Furniture Co., noted damaged by fire at loss \$75,000.

Theatres

Ark., Walnut Ridge—Swan Theatre, care R. E. Priddy, Memphis, and Eli W. Collins, Jonesboro, erect \$50,000 theatre to replace recently burned structure.

Okla., McAlester—Wallace Wilkinson, reported, erect \$150,000, 3-story theater, Main St.

Warehouses

La., Jena—Jena Hardware Co. soon start work on warehouse on Louisiana & Arkansas Ry. tracks.

Tenn., Memphis—Liberty Cash Grocery Co., care Fred Monesti, 132 E. Webster St., erect \$40,000, 2-story brick warehouse addition; comp. roof; Anker F. Hansen, Archt., Shrine Bldg.

Ky.; terrazzo work, J. B. Martina, Denver, Colo., and V. M. Zanchettin, 312-A E. 12th St., Amarillo; terra cotta, Northwestern Terra Cotta Co., Denver, Colo.; Browne windows, Universal Building Products Co., Constr. Bldg., Dallas, Tex.; Townes, Lightfoot & Funk, Archts., Smith Bldg., Amarillo; Page Bros., Asso. Archts., Austin Natl. Bk. Bldg., Austin, Tex.; C. S. Lambie & Co., Contrs., Amarillo Bldg., Amarillo. 1-22

Tex., Beaumont—Szafr & Son Co., 373 Liberty St., Beaumont, has contract at \$56,700 for steel office furniture for \$1,000,000 Jefferson County court house; wood paneling, woodwork and office furniture to A. M. McElwee Co., 1415 Hemphill St., Fort Worth, at \$39,935; office chairs and Venetian blinds, \$12,268, to Port Arthur Furniture Co., 701 Procter St., Port Arthur; kitchen equipment, E. L. Wilson Hardware Co., 1001 Pearl St., at \$3266; hardware finishings, Tyrrell Hardware Co., Beaumont, at about \$5800; Fred A. Stone, Goodhue Bldg.; A. Babin, Perlstein Bldg., architects; McDaniel Bros., Contrs., Kyle Bldg., all Beaumont. 11-20

Dwellings

D. C., Washington—L. E. Brenninger & Sons, Investment Bldg., have permit for \$10,000 dwelling, 7709 Morningside Drive, N. W.; brick, 2 stories; owners build.

D. C., Washington—Cooley Bros., 1405 K St., N. W., have permit for 11 brick dwellings, 1917-37 38th St., N. W.; 2 stories; total \$60,000; owners build.

D. C., Washington—Capital Contracting Co., Calvert Bldg., Baltimore, excavating for

12 brick dwellings, Quintana Place and Seventh St., N. W.; 2 stories, 18x34 ft., wood floors, metal roofs, \$8000 each; plans and constr. by owner. Address H. M. Reinhart, 3517 Calvert Bldg.

D. C., Washington—Donald S. Johnson, 717 Colorado Bldg., erect \$12,000 residence, Edgemoor, Md.; stone and frame, 2 stories, slate roof, tile bath, oak floors, hot water heat; owner builds.

D. C., Washington—G. A. Young, care Skinner & Garrett, Contrs., 1719 I St., N. W., erect \$10,000 dwelling, 4004 Fessenden St., N. W.; 2 stories, brick, hardwood floors, hot water heat.

D. C., Washington—Miss K. M. Miller, 3120 Tenth St., N. E., let contract to Carr Bros., 206 Mills Bldg., for brick and conc. residence, Brandywine St. near 46th St.; 2 stories, tile and hardwood floors, slate roof, hot water heat; Louis Roundtree Moss, Archt., 1653 Pennsylvania Ave., N. E. 1-1

Fla., Jacksonville—A. W. Sears, Professional Bldg., erect brick veneer residence; 2 stories, shingle roof; Jefferson D. Powell, Archt., Professional Bldg.; N. L. Snelson and H. F. McAden, Contrs., 3327 Riverside Ave.

Ga., Atlanta—F. W. Clare, Bona Allen Bldg., let contract to Herbert Kaiser & Co., Citizens & Southern Bank Bldg., for residence, Plymouth Rd., Lennox Park; 1 story and basement, 36x59 ft., tile, hardwood and linoleum floors, Buckingham slate or comp. roof; Edwards & Sayward, Archts.; Robt. E. Logan, Asso. Archt., both 101 Marietta Bldg. 12-4

Ga., Atlanta—Herbert Kaiser & Co., Citizens & Southern Bank Bldg., erect 2 dwellings, Lennox Park; brick veneer, 1 story and basement, 8 rooms, hardwood and tile floors, comp. roof, steam heat; total \$20,000; owners build.

Ga., Atlanta—Prof. Harold Bush-Brown, care Architectural Dept., Georgia Tech, erect brick veneer residence, Ivy Rd.; 2 stories and basement, conc. foundation, hardwood and tile floors, 10 rooms, 2 baths; plans nearing completion by owner.

Ga., LaGrange—Geo. S. Cobb, Jr., let contract to W. R. Melton, West Point, for face brick and field stone residence; 1 story and basement, 11 rooms, 2 baths, hardwood and tile floors, comp. or slate roof; Dennis & Dennis, Archts., 856 Mulberry St., Macon. 1-22

Ga., Thomasville—Alvin K. Lawrie, 930 Park Ave., New York, let contract to Joe M. Beutell, Thomasville, for \$65,000 winter residence, Box Hall Plantation, after plans by Delano & Aldrich, Archts., 126 E. 38th St., New York; brick, stone trim, rein. conc. floor slabs, 2 stories and basement, 110x56 ft., tile and hardwood floors, tile and slate roof, steam heat. 1-29

La., New Orleans—Geo. J. Stoll, Jr., Contr., 2501 Eads St., erect single dwelling, 3039 Urquhart St.; asbestos roof, sheet metal work; ready for sub-bids in about 1 week.

La., New Orleans—N. J. Cousins, 4206 Aster St., erect double dwelling, 1700 Piety St.; asbestos roof, sheet metal work.

La., New Orleans—O'Neil Labeaud, Contr., 3336 Annette St., erect single raised dwelling; ready in about 10 days for sub-bids on wiring, asbestos roof, sheet metal work, brick work, etc.

La., New Orleans—J. W. Johnson, Contr., 2618 N. Roman St., erect double dwelling and 2 garages, 4704 Lafaye St.; asbestos roof, sheet metal work, tile and orna. iron work.

La., New Orleans—Racme, Inc., let contract to Carl E. Woodward, Inc., Louisiana Bldg., for shingle dwelling, 1524 Calhoun St.; rein. conc. foundation, tile roof, pine floors, tile baths, hot air heat; Favrot & Livaudais, Ltd., Archts., Hibernia Bldg. 1-15

La., New Orleans—Chas. Seaner, 1819 N. Broad St., erect double dwelling, 2509 St. Peter St.; asbestos roof.

Md., Baltimore—Harry Page, Bldr., 327 E. 30th St., erect stone dwelling and garage, 207 Upnor Rd., Homeland; stone, 2½ stories, 40x32 ft.; Wrenn, Lewis, Westenhaver & Jencks, Archts., Title Bldg.

Md., Baltimore—Capital Contracting Co., Inc., Calvert Bldg., Baltimore, Md., erect 12 brick dwellings, 611-23 and 612-22 Quintana Place, N. W.; 2 stories; total \$42,000.

Mo., Kansas City—A. K. Simpson, Pres., Simpson Building Co., 109 E. 67th St., erect number bungalows, Askew Ave. and Norledge Place; razing structure on site.

Mo., Kirkwood, St. Louis—Louis Honig, 1412 Lay Rd., started work on 3 brick dwellings, Mitchell Ave. and Argonne Drive, 1 story and basement, 24x40 ft., hardwood floors, tile baths, slate coated shingle roofs, hot air heat; work by sub-contract.

Mo., St. Louis—Mabel Taylor, 3117 Watson Ave., erect 2 brick dwellings, 6425-27 Penrod Ave.; 1 story and basement, 26x45 ft., hardwood floors, comp. shingle roof, tile bath, hot

BUILDING CONTRACTS AWARDED

Association and Fraternal

Miss., Columbus—Young Men's Christian Assn., \$75,000 bldg.; Badger & Badger, Columbus, have contract to complete structure; carpentry work, swimming pool, marble and tile work; W. G. Clarkson & Co., Archts., First Natl. Bk. Bldg., Fort Worth, Tex. 5-29

Churches

La., New Orleans—Our Lady of Perpetual Help R. C. Church, Concession, Plaquemine Parish, let contract to Wm. Wallace, Pere Marquette Bldg., New Orleans for chapel; frame and stucco, 1 story, 37x78 ft., Johns-Manville asbestos shingle roof; Wm. R. Burk, Archt., Balter Bldg., New Orleans. 1-13

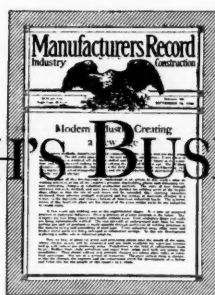
City and County

Okla., Stroud—City let contract to R. M. Crissman, S. W. Natl. Bldg., Oklahoma City, for \$15,000 city hall; brick and conc., 1 story, 45x55 ft., built-up roof; Butler Co., Archt., Insurance Bldg., Oklahoma City. 1-20

Tex., Amarillo—Additional sub-contracts let on \$420,000 Potter County court house: Cast aluminum panels and frames, Borger McCormick Brick Co.; metal toilet partitions, W. A. Fowler; tile work, Roberts Tile & Marble Co., all Amarillo; marble steps and floors for entrances, interior marble and exterior marble base and buttress, Carthage Marble Corp., Carthage, Mo.; metal doors, Jamestown Metal Desk Co., Inc., 104 Blackstone Ave., Jamestown, N. Y.; spiral fire escape, Logan Co., Franklin and Buchanan Sts., Louisville,

MARK SULLIVAN, the well known Washington correspondent of the New York Herald-Tribune, in commenting upon the MANUFACTURERS RECORD, said:

"The MANUFACTURERS RECORD is in a sense the official organ of Southern business in the whole area from Maryland to Texas. It is to the South what The Journal of Commerce and The Wall Street Journal combined are to the business circles of New York."



== THE SOUTH'S BUSINESS PAPER ==

The MANUFACTURERS RECORD is nationally known as the South's leading business paper.

It is an accurate record of the industrial and construction activities which are developing in the sixteen Southern states from Maryland to Texas.

The MANUFACTURERS RECORD is unique. Its opinion on economic problems of moment is eagerly sought and accepted as authority. *It leads!*

air heat; total \$10,000; Lawrence Steffen, Archt., 5445 Grace Ave.; Harry Hardt Construction Co., Contr., 3117 Watson.

Mo., St. Louis—Emil Oppliger, 4336 Gibson Ave., erect \$10,000 brick residence, 6610 Oakland Ave.; 2 stories and basement, 25x40 ft., hardwood floors, tile bath, slate roof, hot water heat; F. G. Avis, Archt., 1021 Big Bend Blvd.; work by sub-contract.

Mo., St. Louis—Ray E. White Realty Co., 1031 S. Big Bend Blvd., erect brick dwelling, Tuscan Park; 2 stories and basement, about 68x40 ft., hardwood floors, tile bath, slate roof, hot water heat; Robt. Francis Denny, Archt., Paul Brown Bldg.; work by sub-contract.

Mo., St. Louis—E. L. Muckerman, 3735 Utah St., erecting English type residence, Lake Forest; stone, brick trim, slate roof, 4 baths, terrazzo floors and walnut finish in living rooms, recreation room in basement Nolte & Nauman, Archts., 3832 W. Pine St.; Geo. F. Bergfeld Co., Inc., Contr.

Mo., St. Louis—J. P. Fendler, 5615 Lisette Ave., erect 4 brick dwellings, 4667-75 Dewey Ave.; 1 story and basement, 24x33 ft., tile baths, hardwood floors, asphalt shingle roofs, hot air heat; total \$16,000; A. F. & Arthur Stauder, Archt., 3608 Gravois Ave.; work by sub-contract.

Mo., St. Louis—J. S. Penney, care Marcel Boulicault, Archt., 1101 Ambassador Bldg., let contract to Walter C. Harting Construction Co., Intl. Life Bldg., for brick residence, Lake Forest; 2 stories and basement, 40x84 ft.; slate roof, 3 baths, vapor heat. 12-11

Mo., St. Louis—Edw. Donnelly, 5466 Eleonore Ave., erect \$10,000 brick duplex, 6006 Carlsbad Ave.; 1 story and basement, 50x29 ft., hardwood floors, asbestos shingle roof, tile bath, hot air heat; Henry Lincks, Contr., 6061 Carlsbad.

Mo., St. Louis—C. H. Philpott, 3843 Utah Place, plans brick residence; 2 stories and basement, 25x32 ft.; R. K. Knox, Archt., Arcade Bldg.; W. S. Brown, Contr., 9515 Marlowe Ave., Overland.

Mo., St. Louis—C. E. Lund, 4505 San Francisco Ave., erect residence, Winchester Drive, Pasadena Hills; brick, 2 stories and basement, 42x42 ft., oak floors, tile bath, copper sheet metal work, cut stone trim, slate roof, hot water heat; O. J. Popp, Archt., 1528 Arcade Bldg.; work by sub-contract.

Mo., St. Louis—Victor Architectural & Building Co., 4826 Delmar Blvd., has contract for brick dwelling, Smizer Mill Rd.; 2 stories and basement, 50x30 ft., stucco, 2 tile baths, struct. steel, slate or asbestos shingle roof, 2-car garage; Ed H. A. Volkman, Archt., 4826 Delmar Blvd.

Mo., St. Louis—Harold Neuman, 5601 Devonshire Ave., erect \$10,000 residence, 6123 Coronado Ave.; brick, 2 stories and basement, 35x30 ft., hardwood floors, tile bath, slate or tile roof, vacuum heat; work by sub-contract.

Mo., St. Louis—Chas. J. Mellis, 315 Bermuda Ave., erect 2 dwellings, 8518-22 Lowell St.; brick, 1 story and basement, 24x32 ft., hardwood floors, tile baths, comp. shingle roofs, hot air heat; total \$10,000; John Davis, Contr., 3500 Colonial Ave.

Mo., University City, St. Louis—P. J. Bierman, care Ed H. A. Volkman, Archt., 4826 Delmar Blvd., erect fireproof brick residence, 7347 Maryland Ave.; 2 stories, basement and attic, about 62x42 ft., 3 baths, 3-car garage, tile, conc. and comp. floors, slate roof, gas boiler; work by sub-contract.

Mo., University City, St. Louis—Flora B. Boerner, care J. Chapman Building Co., Contr., 4050 Delmar Blvd., started work on \$10,000 brick residence, 7041 Cambridge Ave.; 2 stories and basement, 33x31 ft., hardwood floors, tile bath, tile roof, hot water heat.

N. C., Warrenton—Mrs. Addele Jones erect \$15,000 brick veneer residence; limestone trim, 2 stories and basement, hardwood, pine and tile floors, 2 stories and basement, comp. and tile roof; J. A. Salter, Archt., Professional Bldg.; H. E. Satterfield, Contr., 201 Groveland Ave., both Raleigh.

Okla., Oklahoma City—R. C. Cunningham, 818 E. 21st St., started work on \$10,000 residence, W. 40th St.

Okla., Oklahoma City—A. A. Park, 2309 W. 17th St., erecting \$10,000 brick veneer residence; 2 stories, 40x40 ft.; W. J. Laws & Co., Archts., First Natl. Bank Bldg.; day labor.

Okla., Oklahoma City—A. E. Kubeck, 1915 W. 7th St., started work on \$11,000 residence; B. K. Jordan, 214 W. 13th St., Contr.

S. C., Cherter—S. R. Latham erect brick veneer residence; 2 stories; A. D. Gilchrist, Archt. Rock Hill, S. C.; C. A. Morrison & Son, contrs., Shelby, N. C.

Tenn., Memphis—Chas. Salvaggio, 1263 Cummins Ave., remodel residence, 126 Cummins Ave., damaged by fire; \$13,000; owner builds.

Tenn., Memphis—Pettus Davis, 1201 Forrest Ave., erect \$10,000 duplex; stone veneer, 1 story, oak floors, tile baths, comp. roof; Raymond B. Spencer, Archt., Court Square Bldg.; F. C. Storey, Contr., 2013 Higbee St.

Tex., San Antonio—Judge P. C. Sanders, Smith-Young Tower, erect English type residence, double garage and servants' quarters, Woodlawn Hills; brick veneer, 2 stories and basement, 50x60 ft., 2 baths, hot air heat; J. Clyde & Percy W. Williams, Archts., Moore Bldg.; owner builds.

Tex., San Antonio—Amye Bozarth, Aurora Apts., erect \$15,000 residence, 107 Thelma Drive; rock veneer, 60x35 ft., 9 rooms; owner builds.

Va., Richmond—Ross C. Sanford, 2916 Seminary Ave., let contract at about \$44,000 to W. L. Ragland Sons, Bldrs. Exch. Bldg., for brick residence; 2 stories, 38x96 ft., elect. refrigerators, oak, linoleum and tile floors, incinerator, limestone, plaster board, brick foundation, slate roof; L. P. Hartsook, Archt., Amer. Natl. Bk. Bldg. 1-22

Government and State

D. C., Washington—M. Eisenberg & Son, 225 Centre St., New York, has contract at \$48,082 for special lighting fixtures for Department of Commerce.

Fla., Raiford—State erect \$18,000 confinement house, State Penitentiary, by prison labor; rein. conc., 1 story, 86x121 ft., rein. conc. floors, foundation and roof; C. S. Hammett, State Engr., Jacksonville. 1-8

Mo., Jefferson City—Bodine Ice Machine Co., 600 Prospect St., Springfield, has contract for ice plant and storage and refrigeration plant for \$750,000 intermediate reformatory, Alcoa; Wm. B. Ittner, Inc., Archts.-Engrs., 3615 Olive St., St. Louis. 12-18

Okla., Oklahoma City—Additional sub-contracts let on \$1,100,000 remodeling and extension of post office and court house: Stone, Walker Stone Co., Bloomington, Ind.; wiring, D. C. Barnett, 1110 S. Greenwood St., Fort Smith, Ark.; painting, Wm. Wilson Co., Inc., Bona Allen Bldg., Atlanta, Ga.; plastering, Stacy J. Shaw, 914 Main St., Cincinnati, O.; DeVault & Deitrick, Inc., Contrs., Massillon Rd., Canton, O.

Tenn., Nashville—Constructing Quartermaster, Fort McPherson, Ga., let contract at \$9985 to M. & Q. Construction Co., 68 Arcade, Nashville, for lodge, Nashville National Cemetery; Dutch Colonial type, conc., hollow tile and wood, 2 stories, 34.10x32.10 ft., hardwood floors, conc. foundation, asbestos shingle hip roof, cast stone, plaster board. 12-18

Tex., Randolph Field—Constructing Quartermaster, Capt. A. W. Parker, let contract at \$13,244 to Robt. E. McKee, 1916 Texas St., El Paso, for elect. sub-station and gas meter house; brick, tile, stucco, cast stone and rein. conc., 1 story, steel windows and partitions, tile roof. 1-29

Tex., Randolph Field—Constructing Quartermaster, Capt. A. W. Parker, let contract at \$197,217 to George Wieland Co., 106 E. 25th St., El Paso, for 17 company officers' quarters. Randolph Field; Spanish type, masonry, 2 stories; John M. Marriott, Paddock, Chmn., Houston, let following material contracts for Central State Farm Prison: Rein. steel, Alamo Iron Works, 130 Santa Clara St., San Antonio, \$10,493 steel sash, Robt. Voigtlander, Electric Bldg., Houston, Tex., \$2648; metal doors, R. J. Dewees Co., 3015 Grand St., Dallas, at \$1415; conc. chimney, J. Jay Rossiter, \$1340; jail equipment, Southern Prison Co., 4500 block S. Presa St., Houston, at \$5416; metal lockers and partitions, John A. Williamson Co., San Antonio, using Medart lockers and Weisteel partitions, \$2000; Gleescke & Harris, Archts., Norwood Bldg., Austin; Prof. F. E. Gleescke, Consultant, College Station, Tex.; Lloyd D. Royer, Consit. Mech. Engr., Smith-Young Tower, San Antonio. 1-15

W. Va., Morgantown—Houghton Elevator & Machine Co., Vermont Bldg., Washington, D. C., has contract for elevator for post office. 1-8

Hospitals, Sanitariums, Etc.

Ark., Benton—Shaw Gas & Plumbing Co., 1401 W. Third St., Little Rock, has contract at \$96,007 for plumbing, heating and ventilating systems in 6 bldgs. for Farm Colony unit of \$3,250,000 State Hospital for Nervous Diseases; Mann, Wanger & King, Archts., New Donaghey Bldg., Little Rock; Sullivan W. Jones, Consit. Archt., 25 W. 45th St., New York; Lund Engineering Co., Engr., Home Ins. Bldg., Little Rock; Wm. Peter-

son, Donaghey Bldg., Little Rock, gen. contract at \$327,500. 1-29

Md., Crownsville—Crownsville State Hospital let contract to Thos. Mullan, 3945 Greenmount Ave., Baltimore, for \$80,000 nurses' home; brick, 2 stories; Jos. Evans Sperry, Archt., Calvert Bldg.; Herman Doeelman, Struct. Engr., Balto. Trust Bldg., both Baltimore. 1-15

Hotels and Apartments

La., Monroe—Walter N. Morris, 1801 Trenton St., West Monroe, has contract at \$17,847 for two apartments, Mulberry and St. John Sts., for H. & S. Masur, Inc.; also has contract at \$5992 for combination store and apartment on DeSiard St. for Joe Sampognare, 901 Pine St.; all buildings 2 stories, brick veneer; Love & Barr, Archts.

Md., Baltimore—Chatham Hotel Co., Inc., 1720 St. Paul St., remodel 3 upper floors of Biltmore Hotel, Fayette and Paca Sts.; use for family hotel; \$30,000 to \$40,000; constr. probably by day labor.

Md., Baltimore—Gunn, Williamson & Guy, 305 N. Charles St., have contract to erect 3-story, 42x77 ft., brick apartment; soon ready for sub-bids; J. Winthrop Wolcott, Archt., 324 N. Charles St.

Mo., St. Louis—John Bortschaller, 4115 Bowen St., erect \$10,000, 2-story, 34x60 ft., brick tenement, 4964-66 Miami St.; comp. shingle roof; Nick Weger, Archt., 4474 Wilcox St.; owner builds.

Va., Fredericksburg—Fredericksburg Hall Assn. started work on additions and remodeling old Fredericksburg opera house, Main and Commerce Sts., into 18-apartment house; \$50,000; 3 stories, oak and tile floors, incinerators, marble; B. Stanley Simmons, Archt., 1315 H St., N. W., Washington, D. C.; G. E. Heflin, Contr., Fredericksburg.

Miscellaneous

Mo., St. Louis—Laclede Steel Co., Arcade Bldg., and Scullin Steel Co., 6700 Manchester St., have contract for 2800 tons rein. conc. for \$5,000,000, 21-story merchandise mart, Poplar, Spruce, 12th and 13th Sts., to be operated by St. Louis Mart, Lawrence H. Whiting; foundation completed; Gamble Construction Co., Gen. Contr., 401 Olive St.; Preston J. Bradshaw, Archt., 18 Locust St.; W. J. Knight & Co., Consit Engrs. Wainwright Bldg. 1-29

Va., Williamsburg—Williamsburg Holding Corp., Kenneth Corley, Resident V.P., soon start work on \$150,000 courthouse, city hall and jail for joint use of James City County and City of Williamsburg; Todd & Brown, Inc., Contrs., Robert Trimble, Jr., Mgr., in charge of all restoration work; Perry, Shaw & Hepburn, Archts., 141 Milk St., Boston, Mass. 11-23

Railway Stations, Sheds, Etc.

Md., Baltimore—Pennsylvania R. R., J. W. Craig, Pennsylvania Station, let contract to M. A. Long Co., 10 W. Chase St., for produce terminal, Bolton Yards; building to cost \$226,000, steel and brick; foundations under way; plans also include sheltered platform 600 ft. long, 8 tracks accommodating 325 cars; 60 ft. conc. driveways will separate tracks; total cost about \$750,000; W. H. Cookman, Ry. Archt., Broad Street Station, Philadelphia. 1-22

Schools

Ala., Auburn—Bd. of Education, J. R. Ruthland, let contract at \$101,998, to Snellings Lumber Co., Phenix City, for 2-story and basement, brick, struc. steel, stone trim school; comp. roof; plans by A. F. Dittmar, State Dept. of Education, Montgomery. 1-29

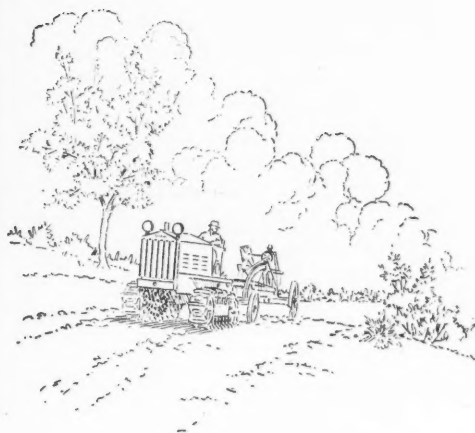
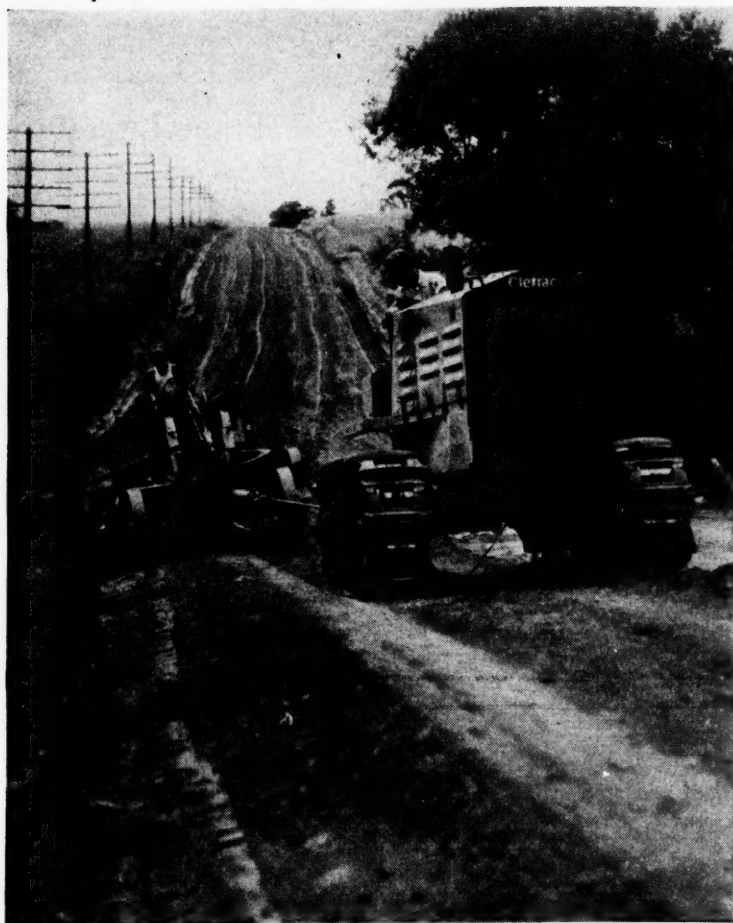
Ark., Harrison—Crooked Creek Special School Dist., care W. E. Halbrook, Supt., Boone County School Bd., let contract to Joe S. Pierce for 1-story, brick veneer school; plans by C. M. Hirst, State Dept. of Education, Little Rock.

D. C., Washington—District Commrs., Roland M. Brennan, Ch. Clk., Engr. Dept., Dist. Bldg., let contract at \$91,800 to Arthur L. Smith & Co., 2539 Pennsylvania Ave., N. W., for 4-room addition to Deanwood School; A. L. Harris, Municipal Archt., Dist. Bldg. 1-29

D. C., Washington—District Commrs., Roland M. Brennan, Ch. Clk., Engr. Dept., Dist. Bldg., let contract at \$135,000 to George E. Wyne, 2530 Pennsylvania Ave., N. W., for 12-room addition and two gymnasiums at Gordon Jr. High School; A. L. Harris, Municipal Archt., Dist. Bldg. 1-22

Ky., Louisville—Bd. of Education, Samuel D. Jones, Bus. Dir., let contract at \$242,000 to George H. Rommel Co., 958 Logan St., for

Make Your Equipment Earn BIGGER MONEY



Hook it up with CLETRAC POWER

THE value of your tractor operated equipment, like everything else in your business, is measured by its ability to *earn money*. And that earning ability is made big or little by the efficiency or inefficiency of the tractors you use.

Cletrac Crawlers offer the kind of sure-footed, abundant power that boosts the performance of any piece of equipment and gets from it the very limit of its capacity.

Cletrac Crawlers are known the world over for their unmatched delivery of power at the draw-bar and their ability to turn out a bigger day's work every day in the year. Rolling along on sure-

gripping, broad, steel tracks they make equipment get down to business regardless of the odds of weather or bad going. They handle easily and travel fast, saving time and costs on every job.

Thousands of Cletracs are used by highway departments, road and general contractors and county and municipal authorities. Cletrac's ability to handle all kinds of work speedily and economically has gained for them outstanding recognition and preference.

See the Cletrac distributor or write for complete details on any or all models.

THE CLEVELAND TRACTOR CO.
19333 Euclid Avenue Cleveland, Ohio

James Russell Lowell School on Crittenden Drive and Phillips Lane; 2 stories, fireproof, 72 rooms with combination gymnasium and auditorium, wood floors, comp. roof; J. M. Colley, Archt., Eighth and Chestnut Sts. 1-8

La., Marrero—Roman Catholic Diocese of New Orleans let contract at \$72,263 to Geo. J. Glover Co., Inc., Whitney Bank Bldg., New Orleans, for 2-story, 128x135 ft., brick stucco and stone trim, Doctor Marcus Fien-gold Memorial, Mechanical and Arts Bldg. at Hope Haven Mechanical and Industrial School; comp., built-up and arch roof, gas steam heat, marble, tile, wood, cellized wood and cement floors. 1-29

La., New Orleans—Following sub-contracts awarded on 3-story, 283x136 ft., brick and conc. B. M. Palmer School for which O. M. Gwin Construction Co., 3501 Fern St., has general contract at \$206,200: Rein. steel and roof deck, Truscon Steel Co., Canal Bank Bldg.; roofing and sanitary fill, W. M. Bennett Roofing Co., 430 Melponene St.; austral hardware, J. R. Quaid, 808 Perdido St.; sand, gravel, cement and metal lath, Jahncke Service Co., Inc., 814 Howard Ave.; anti-hydro waterproofing, fire brick and flue lining, J. J. Clarke Co., Ltd., 1601 Julia St.; conc. drain pipe and fittings, W. J. Steen Co., Inc., 4041 S. Carrollton St.; hydrated lime, magnolia cement, Peter Judlin, Inc., 2936 St. Claude St.; cast stone, Edward D. Boyle & Co., Inc., 3301 Julia St.; flag pole, Higgins Lumber & Export Co., Inc., 539 Carondelet St.; factory work, Treigle Sash Factory, Inc., 3001 Jackson St.; glass and glazing, Jos. B. Crasto Glass Co., 2001 Adams St.; hardware, Stauffer, Eshleman & Co., Ltd., 511 Canal St.; hollow tile, Dixie Building Material Co., Inc., 4605 Washington St.; hauling and river sand, John J. Palmisano, 1928 Pine St.; linoleum floor, L. Feibleman & Co., Inc., 900 Canal St.; marble work, Alb. Weiblen Marble & Granite Co., 521 City Park Ave.; piling, Carl Bougere, Canal Bank Bldg.; painting and wall papering, W. Scrimshaw, 4300 Elba St.; plastering, Moroney & Middleton, Canal Bk. Bldg.; plumbing, heating and oil burning system, Mayer Godechaux Co., Inc., 1331 St. Charles St.; struc. steel, Louisiana Erecting Co., Inc., Industrial Canal; sheet metal work and lighting conductors, Standard Sheet Metal Works, 1153 Tchoupitoulas St.; screens, Werling & Brandon, 3718 Banks St.; slate blackboards, wire fence, C. F. Favrot Supply Co., 2530 Perdido St.; swinging blackboards, wardrobe, Nachary Builders Supply Co., Inc., 318 Carondelet St.; tile work and slate hearth, Eugene J. Zimmerman, 1721 Carondelet St., all New Orleans; bronze tablet, Alexandria Foundry, Machine & Boiler Works, Inc., 1325 Ashley Ave., Alexandria. 1-22

La., New Orleans—Following additional sub-contracts awarded on Eleanor McMain Academic High School for Girls for which J. A. Petty & Sons, Inc., Audubon Bldg., have general contracts at \$525,985: Rein. steel, Laclede Steel Co., St. Louis, Mo.; face brick, comp. floors, metal toilet doors, J. R. Quaid; cement, American Brick Co.; sand, gravel, brick, Clifford Favrot Supply Co.; screens, Moskau Cabinet Works; electrical, Bunn Electrical Engineering Co.; plastering, Sam C. Ball & Co.; Donovan hardware, acoustical plaster, Zachary Builders Supply Co.; terrazzo, United Tile & Terrazzo Co.; tile floors, Eugene J. Zimmerman; finish hardware, Woodward Wight & Co.; painting, Walter Scrimshaw; misc. iron, J. R. Sutton; forms completed for second floor slab and pouring columns supporting second floor; E. A. Christy, Supvg. Archt. 12-4

La., Ville Platte—Evangeline Parish School Bd., B. V. Launey, Supt., let contract at \$82,211 to Zenon Landreneau for two frame schools in Tate Cove School Dist. No. 1; Herman J. Duncan, Archt., 120 Murray St., Alexandria. 1-8

Md., Baltimore—Bd. of Public Improvement Comsn., H. J. Leimbach, Supvg. Engr., let contract at \$127,826 to Mullan Contracting Co., 3945 Greenmount Ave., for addition to colored elementary school No. 122, Preston St., between Druid Hill and Pennsylvania Aves.; Flournoy & Flournoy, Archts., 334 St. Paul St.; Henry Adams, Inc., Mech. Engr., Calvert Bldg.; Henry Massart, Struc. Engr., 328 N. Charles St. 1-29

S. C., Denmark—Voorhies College, J. G. Blanton, Prin., let contract to Aiken & Faulkner, 158 Auburn Ave. N. E., Atlanta, Ga., for \$80,000, 2-story and basement, rein. conc., brick and tile, stone trim classroom building; comp. roof, wood and tile floors, steam heat; S. J. Makielski, Archt., Charlottesville, Va.; Rev. H. D. Phillips, Trinity Church, Columbia, Chmn., Bldg. Comm. 1-29

Tenn., Murfreesboro—State Bd. of Education, P. L. Harned, Chmn., War Memorial Bldg., Nashville, let contract to C. B. Kelly, 305 Church St., Nashville, for 4 teachers' homes on campus; two one-story and basement, 34x36 ft.; two 2 stories and basement, 26x32 ft.

Stores

Ga., LaGrange—W. A. Holmes let contract to Daniel Lumber Co. for 2-story and basement, 108x90 ft., brick store to replace recently burned structure; comp. roof, stone trim. 1-22

Ga., LaGrange—Childs & Pharr let contract to Newman Lumber Co. for one and two-story and basement, 51x114 ft., struct. steel, brick, limestone trim store; steam heat, tar and gravel roof; Burge & Stevens, Archts., Marietta Bldg., Atlanta. 1-22

Ga., Rome—Esserman & Co. let contract at \$16,789 to B. F. Camp & Son for additions and alterations to store; 2 stories and basement, 45x132 ft., brick, limestone, cast stone or terra cotta, comp. roof; Lockwood & Poundstone, Archts., Marietta Bldg., Atlanta. 1-29

Ky., Bowling Green—Hugh L. Russell, Ashland, has contract to remodel store, to be leased to Scott Stores, Inc., L. Hill Constr. Mgr., 430 W. Randolph St., Chicago, Ill.

La., Alexandria—Scott Stores, Inc., 430 W. Randolph St., Chicago, Ill., let contract to A. Lloyd Goode, Inc., 328 N. Tryon St., Charlotte, N. C., for \$25,000 store, Third St. near Murray St.; brick, 2 stories. 1-15

La., Baton Rouge—S. H. Kress & Co., 114 Fifth Ave., New York, let contract to Bowen Construction Co., care S. H. Kress & Co., Salina, Kans., for alterations and additions to 3-story store, Main and Third Sts.; Edw. F. Sibert, Company Archt.

Md., Dundalk, Baltimore—Antone Franckewitz, Holly Neck Road, Essex, erect \$15,000, 2-story, 32x50 ft., conc. and stone building on Pittsburgh Ave., for 2 apartments, 2 stores and filling station; Henry C. Royahn, Contr., Belair Road, Fullerton.

Md., Parkville—Peter Redel, Bldr., ready for sub-bids about Feb. 15 for 4 stores; 1-story, 25x75 ft., conc and stone; plans and construction by owner.

Miss., Greenville—Reid Brothers, W. M. Reid, let contract to M. L. Virden Lumber Co. for 1-story, 25x110 ft., brick store, 505 Washington Ave.; plate glass and copper front.

Miss., Prentiss—B. G. Walden let contract to Tom Massengale, Heidelberg Bldg., Hattiesburg, for 1-story, 45x90 ft., brick and hollow tile store; conc. floors, built-up roof; E. C. Hearon & Sons, Archts., 121½ W. Pine St., Hattiesburg. 1-22

Mo., St. Louis—S. S. Kresge Co., T. B. Murphy, Supvr. of Constr. Div., 2727 Second Blvd., Detroit, Mich., started work on \$40,000 improvements to store, 522 Washington Ave.; stories, brick; owner builds.

Mo., St. Louis—Chris Spooneman, 4142 Farlin Ave., has contract for 2-story and basement, 50x27 ft., brick store and apartment, Mearen and Klefer Aves.; Julius E. Tarling, Archt., 2506 N. Grand Blvd.

Okla., Tulsa—American Railway Express Co., 317 S. Cinn. St., started work on \$25,000 improvements to building; 2 stories and basement, brick; Acme Construction Co., Contr., 506½ S. Main St.; J. M. Dunham, Archt., Chemical Bldg., St. Louis, Mo.

Tenn., Memphis—C. D. Peeples, 150 Madison Ave., soon start work on three stores, Jefferson Ave. and Waldron St.; \$20,000, one story, 78x75 ft., brick, comp. roof, wood and conc. floors; Henry Maselage, Contr., 211 Adams Ave.

Tex., Austin—Fox-Schmidt Co., 415 W. 6th St., let contract at \$13,847 to Frank Barron, Norwood Bldg., for 1-story, 46x125 ft., brick, stone and steel store; cement and terrazzo floors; Page Brothers, Archts., Littlefield Bldg. 1-29

Tex., Victoria—Anchor Lumber Co. sub-let contract to Ed Wagner, Victoria, for 1-story, 51x65 ft., brick store on W. Santa Rosa St. for W. C. Maroney, of Bloomington; to be occupied in part by Victoria Wall Paper & Paint Co.

Va., Richmond—Sydnor & Hundley, 700 E. Grace St., let contract to Davis Bros., Inc., 1716 Summit Ave., for \$150,000, 6-story and basement, rein. conc. steel, brick and stone store, Grace St. between First and Second Sts.; Carneal, Johnston & Wright, Archts., Electric Bldg. 1-1

Theatres

La., Zwolle—Sabine Theatre Corp., I. Edelstein, Pres., erect \$15,000, 50x100 ft., brick moving picture theater; comp. roof, equipment and furnishings, \$5000; owner prob. build. See Want Section—Building Material and Equipment.

Warehouses

Md., Baltimore—Garvey Brothers, J. F. Garvey, 3204 Frederick Ave., have permit for 2-story, 31x146 ft., brick, building, Frederick

Ave. and Ellamont St., for warehouse, show room and office; wood floors, slag roof; owner will probably build; steel work, Commerce Iron Works, Washington Bldg. See Want Section—Building Material and Equipment. 1-8

Tenn., Memphis—Penn Oil Co., F. P. Kendall, Pres., 1075 N. Second St., let contract to V. V. Rittelmeyer, 187 S. Watkins St., for \$15,000, 2-story, brick and corrugated iron warehouse; comp. roof. 1-29

Trade Literature

Automobile Screens.—The Minneapolis Auto Screen Co., Howard O. McMillan, president, Minneapolis, Minn., is distributing a folder dealing with front and side screens for automobiles.

CP Contractors' Equipment.—The Chicago Pneumatic Tool Company, New York, has issued booklet SP-1785, devoted to CP contractors' equipment, including pneumatic air compressors and tools of various kinds. The publication is fully illustrated and shows various applications of the CP products.

Pictorial Magazine.—The Amarillo Photogravure Magazine, a pictorial presentation of Amarillo, Texas, has been issued by Hanna & Odor of that city and is being distributed by the Amarillo Chamber of Commerce. The magazine presents interesting views of Amarillo's outstanding buildings, including residences, industrial plants, offices and hotels.

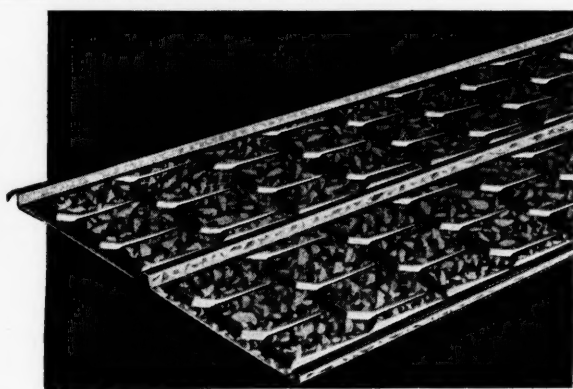
Prison Windows.—The William Bayley Co., Springfield, Ohio, is distributing folders illustrating and describing the Bayley guard windows for prisons. In the development of windows for penal institutions this company is a pioneer, designing windows to give an abundance of light and ventilation, yet made as nearly escape-proof as modern steel construction can provide.

Bay City Equipment.—Bay City Shovels, Inc., Bay City, Mich., have issued catalog RS-4 devoted to full revolving convertible power shovels, cranes and draglines, with detailed description and showing their application to various classes of work. The company also is distributing a pocket catalog, circular 33, illustrating and describing several models.

Alabama Minerals.—The Geological Survey of Alabama, Walter Bryan Jones, Ph.D., state geologist, University of Alabama, has published bulletins 40 and 41: "Gold Deposits of Alabama and Occurrences of Copper, Pyrite, Arsenic and Tin," and "Ochers of Alabama." Bulletin 40 was prepared by George I. Adams, D.Sc., geologist of the Survey, and bulletin 41 by Jelks Barksdale, M. S., staff geologist.

Building Devices.—Two folders issued by the M. & W. Wire Clamp Co., Minneapolis, Minn., Howard O. McMillan, president, deal, respectively, with cleating clamps and an adjustable strip tie and spacer. The cleating clamp is designed for drawing forms and lumber together before cleats are nailed and does away with screw threads, sliding dogs and other devices. The strip tie is designed to clamp concrete forms together and hold them apart.

(Continued on page 72)



Ornamental "Twodrain" The Good Looking Metal Roofing

This new "Twodrain" ornamental pattern makes a definite advance in metal roofing . . . and of course it is a Milcor product. The two drain channels assure double protection. Ends may be lapped or end locked. Long life at low cost. Write for prices and information.

MILCOR STEEL COMPANY

(formerly Milwaukee Corrugating Co., Milwaukee, Wis. and The Eller Mfg. Co., Canton, Ohio)

Main Offices 1451 Burnham St., Milwaukee

Plants at Milwaukee, Wis., Canton, Ohio, La Crosse, Wis., Chicago, Ill. and Kansas City, Mo.

Sales Offices: New York, 418 Pershing Sq. Building; Boston, Mass., 726 Little Building; Atlanta, Ga., 207 Bona Allen Building; Minneapolis, Minn., 642 Bldg. Exchange Building; Little Rock, Ark., 104 W. Markham Street

MILCOR PRODUCTS

Permanent Safety—

Not merely lasting protection from the dangers of slipping but long freedom from floor maintenance as well.

Write for sample of this scientifically designed floor plate.

Central Iron & Steel Co.

HARRISBURGH, PA.

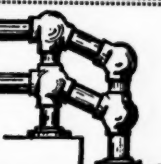
Branches in principal cities

REG. U.S. PAT. OFF. "KNOBBY" NON-SKID
CENTRAL FLOOR PLATES

UNDERWRITERS LABORATORIES INSPECTED S A 443



IRON PIPE RAILINGS



When in the market for Pipe Railing for Stairs, Bridges or Retaining Walls, send us your drawings. We can quote you prices that will be worth considering.

PIPE RAILING CONSTRUCTION CO., Long Island City, New York

THE GEORGIA MARBLE COMPANY

Producers and Manufacturers of

GEORGIA MARBLE

Tate, Georgia

Atlanta Chicago Cleveland Dallas New York

SPECIFY

KEALOW

SERIES M—BRIDGE SLABS

SERIES V—GRATINGS

FOR

HIGHWAYS, ROADWAYS,
WALKWAYS

STEEL JERSEY CITY, NEW JERSEY

GUNITE

CONSTRUCTION COMPANY

Specialists in all kinds of Cement Gun Work

Contracts taken everywhere—Estimates furnished

Room 1630 GRAYBAR BLDG., 420 Lexington Ave., N. Y. City
Telephone Mohawk 4-5675

GUNITE METHOD

Specialists in
CEMENT GUN CONSTRUCTION

Contracts Executed Anywhere

GUNITE CONCRETE AND CONSTRUCTION CO.

BARCLAY A. GREENE, President

1301 Woodswether Road, Kansas City, Mo.

Branch Offices: St. Louis, Mo.; Chicago, Ill.; Birmingham, Ala.;
Dallas, Tex.; La Feria, Tex.

Snead Architectural Iron Works

STRUCTURAL STEEL
ORNAMENTAL IRON

LOUISVILLE, KY.

CEMENT-GUN CONSTRUCTION THE RUST ENGINEERING CO.

Engineers and Contractors on all kinds of
Cement-Gun Work

MARTIN BUILDING, BIRMINGHAM, ALA.

New York Pittsburgh Washington Chicago

WANT SECTION

THE CLASSIFICATIONS IN THIS SECTION ARE:

Machinery and Supplies

Under this heading are reported requests for data, prices and literature and information on machinery, supplies and miscellaneous materials of a wide variety.

Items in this department are published without charge and these columns are open for the publication of wants of all kinds relating to construction work, machinery, materials and supplies.

Building Materials and Equipment

This division comprises all classes and kinds of materials and equipment used in building and construction projects of every kind.

Bids Asked

Includes bids asked by U. S. Government, States, districts, municipalities, firms and individuals for machinery, materials, supplies and construction work.

Machinery and Supplies

G. E. Plier, Engr.-Bldr., P. O. Box 145, Baxley, Ga.—Wants prices and information on following:

- (1) Bench Jointer (electric)—second hand
- (2) Bench Shaper (electric)—second hand
- (3) Lathe (wood)—11-inch.

Guyan Machine Shops, Logan, W. Va.—Wants prices and data on following:

- (1) Boring Mill—horizontal, boring, drilling and milling or floor mill
- (2) Crane—about 5 ton capacity, locomotive type, electrically or gasoline operated
- (3) Hoists—for I-beam, 1 to 5 ton capacity, a. c. and d. c., 220 volt
- (4) Lathe (Engine)—about 20 in. x 14 ft., Q. C. gear, taper attachment, single pulley or a. c. motor drive
- (5) Motors—a. c., 220-440 volts, 3 phase, 60 cycle, 5 h. p. to 100 h. p.
- (6) Starters—20 to 50 h. p., 220-440 volts, 3 phase, 60 cycle
- (7) Welding Machine—200 to 300 ampere, gasoline or belt driven.

H. C. Dunn, Box 1494, Greenville, S. C.—Wants prices and data from manufacturers on following:

- (1) Air Compressors
- (2) Air Tanks
- (3) Motors (Electric)
- (4) Water System Tanks.

Swanson Aircraft Co., Inc., Hopewell, Va., wants following for 2-passenger cabin monoplane manufacturing plant:

- (1) Bandsaw—20 in. or smaller, motorized
- (2) Drills—hand electric, 110 volt, 3/16 in. aircraft type
- (3) Grinder—10 in. ball bearing, 110-volt, single phase or 220-volt, single or 3 phase.
- (4) Lathe—aircraft type, motorized, abt. 11 in. x 3 ft. or 4 ft. with 1 1/4 in. hole through, screw cutting.
- (5) Nibbling Machine—1/4 in. capacity, 12 in. throat, motorized
- (6) Sander—electric portable hand type.

W. M. Smith & Co. (Mchry. Dealer), Box 1709, Birmingham, Ala.—Wants prices and data on following:

- (1) Air Compressor—2000 cu. ft. per min. capacity, steam driven
- (2) Scarp Shear—1 S. H., about No. 3 Doelger and Kirsten capacity.

Floor Surfacing Machines.—Matt Hines, Contr., N. Main St., Mt. Airy, N. C.—In market for floor surfacing machine.

Knife Grinder.—Henry Walke Co. (Mchy. Dealer), Norfolk, Va.—Wants prices and data on used knife grinder for 54-in. knife.

Lathe and Piston Grinder.—J. M. Ramsey, Marshall, N. C.—opening garage—Wants prices and data on used lathe and piston grinder.

Retort.—Phenix Furniture Co., Georgetown, S. C.—Wants prices on retort to consume waste material, consisting of charred white oak sticks, 1 in. square by 6 in. long.

Road Building Material and Equipment.—Venesoen Schoonjans & Co., 9, Longue Rue Lozane, Antwerp—Wants prices and data on all machinery, tools and materials for road building.

Water Wheels.—Kenneth M. Johns, Westminster, S. C.—Wants prices and data from manufacturers of overshot water wheels.

Gate City Sash & Door Co., Fort Lauderdale, Fla.—Wants prices and data on following, late type, good condition:

- (1) Engines (Diesel)—2, preferably 75 h. p. and 125 h. p.
- (2) Generators—for above, 60 cycle, 220 volt, 3 phase
- (3) Switchboard Equipment
- (4) Tank (Storage)—10,000 gal.

Crusher (Gyratory).—R. P. Johnson (Mchy. Dealer), Wytheville, Va.—Wants prices and data on used No. 5 or 6 gyratory crusher; must be in A-1 condition.

Refrigerating Equipment.—Indian River Fisheries, Inc., Henry H. Guerin, Pres., Sebastian, Fla.—Wants data and prices on refrigerating equipment.

Hudson & Dugger Co. of Arkansas, P. O. Box 65, Little Rock, Ark., wants prices on following for heading mill, used:

- (1) Cabinet Jointers—2 round cylinder, 4 knife, 8 in.
- (2) Dry Kilns—and equipment for kilns
- (3) Engine—200 h. p. Corliss type
- (4) Heading Saws—56 or larger diam. 1400 RPM
- (5) Generator Set—for lighting 50,000 sq. ft.
- (6) Heading Jointer Wheels—14
- (7) Heading Turners—3
- (8) Planers—Whitney 6 knife round cylinder or any planer to plane gum as well as oak.

Swing Span (Draw Bridge).—Royce Ker-shaw, Inc., 308 Meaher Bldg., Mobile, Ala.—Wants prices and data on used draw bridge swing span, 125 ft. with 20-ft. roadway, H-1p loading complete with hand operating machinery; first class condition.

Pumps, Pipe.—City of Hollister, Mo., H. C. Hofmeister, Mayor, wants turbine pumps and c. i. pipe.

Miscellaneous

Disinfectant.—Elliott Electric Co., Inc., 215 Milam St., Shreveport, La.—Wants prices and data on disinfectant solution or similar materials for use in public institutions and public office buildings, etc.

Geo. T. Robinson, Box 1121, Daytona Beach, Fla.—Wants prices and data from firm in position to manufacture newly patented 1-piece reversible bracket for spring rollers.

Road Building Material.—See Machinery and Supplies—Road Building Material and Equipment.

Show Cases.—Indian River Fisheries, Inc., Henry H. Guerin, Pres., Sebastian, Fla.—Wants show cases.

Building Material and Equipment

J. F. Garvey, 3204 Frederick Ave., Baltimore, Md., wants prices on following for 2-story warehouse, show room and office:

- Elevators
- Metal Ceilings
- Plaster Board
- Roofing (Flat)—built-up
- Steel Sash and Trim
- Wire Glass.

J. Kinney, Commerce Bldg., Kansas City, Mo., interested in kitchen and dining room equipment, also club furnishings for Lake of the Ozarks County Club, Bagnell, Miller County, Mo.

Morrison Bros., Gen. Contrs., Bethesda Bank Bldg., Bethesda, Md., estimating on swimming pool, Glen Echo, Md., for Glen Echo Park Co., subsidiary of Washington Ry. and Electric Co., 14th and C Sts., N. W., Washington, and want prices on all sub-contracts; Alexander, Becker & Schoeppe, Inc., Engrs., 1602 Spruce St., Philadelphia, Pa.

Sabine Theatre Corp., I. Edelstein, Pres., Zwolle, La., wants prices on all machinery and equipment for \$15,000 theater; equipment, furnishings, etc., \$5000, second hand if possible.

Bids Asked

Automobile.—City, W. E. Monteith, Mayor, Houston, Tex.—Bids Feb. 11 for 8-cylinder 4-door sedan.

Bending Roll Machine.—See Miscellaneous Machinery and Tools.

Boilers.—U. S. Engr. Office, Mobile, Ala.—Bids Feb. 10 for 3 steam boilers, horizontal return flue, externally fired, Western River type, size 38 in. diam. 16 ft. 6 in. long, for 200-lb. steam working pressure.

Bridge.—Mississippi. See Construction News—Roads, Streets and Paving.

Chassis.—Commrs., D. C., Washington, D. C.—Bids Feb. 20 for 2 truck chassis, equipped with cab and hoist.

Conduit.—Bd. of Awards, Office of City Register, City Hall, Baltimore, Md.—Bids Feb. 18 for vitrified clay conduit for Bureau of Mechanical-Electrical Service.

Dextrine, Oils, etc.—Treasury Dept., Bureau of Engraving and Printing Washington, D. C.—Bids Mar. 23 for dextrine, oils, textiles and dry colors during fiscal year beginning July 1, 1931.

Dredging.—U. S. Engr. Office, Jacksonville, Fla.—Bids Feb. 19 for dredging approx. 951,000 cu. yd., Intracoastal Waterway. See Construction News—Drainage, Dredging and Irrigation.

Drills and Reamers.—See Miscellaneous Machinery and Tools.

Elevator.—Treasury Dept., Office of Supvg. Archt., Washington, D. C.—Bids Feb. 24 for installing passenger elevator in U. S. post office, courthouse, etc., Bartlesville, Okla.

Fuse Plugs.—Bureau of Supplies and Accounts, Navy Dept., Washington, D. C.—Bids Feb. 10 for fuse plugs for naval powder factory, Indian Head, Md.

Forgings.—Chief, Bureau of Ordnance, Navy Dept., Washington, D. C.—Bids Feb. 10 for 5 15x45-in. liner forgings; 10 14x45-in. liner forgings and 5 5x25-in. gun barrel forgings.

Garage Machine.—Pur. and Contracting Officer, Normoyle Q. M. Dept., San Antonio, Tex.—Bids Feb. 24 for truck and bus lift, 18,000-lb. capacity, and combination heavy-duty brake drilling and riveting machine.

Lumber.—Chemical Warfare Service, Edgewood Arsenal, Edgewood, Md.—Bids Feb. 25 for 15,000 ft. lumber.

Milling Machine.—See Miscellaneous Machinery and Tools.

Miscellaneous.—Panama Canal, Office of Gen. Pur. Officer, Washington, D. C.—Bids Feb. 11 for following, Sch. 2626:

Galv. roofing and siding, rolling door, steel pipe, bronze propellers, safety treads, insulated wire, fire bricks, pig tin, phosphor tin, slab zinc, pig iron, etc.

Miscellaneous.—Panama Canal, Office of Gen. Pur. Officer, Washington, D. C.—Bids Feb. 21 for following, Sch. 2630:

Air compressor, struc. steel, plate steel, drill casing, buffer springs, rivets, bolts, nuts, expansion bolt shells, brass chain, electric motor, transformers, etc.

Miscellaneous Machinery and Tools.—Bureau of Supplies and Accounts, Navy Dept., Washington, D. C.—Bids Feb. 17 for electric drills and reamers, pneumatic hammers and combination woodworking machine; bids Feb. 24 for upright stationary head drill, motor driven plate bending rolls machine, motor driven vertical boring machine and motor driven horizontal milling machine.

Naphthalene.—Marine Corps, Q. M. Dept., Washington, D. C.—Bids Feb. 9 for 32,000 lb. naphthalene, delivery Philadelphia, Pa.

Pile Caps.—Office of Corps Area Engineer, Headquarters, Third Corps Area, 311 St. Paul Pl., Baltimore, Md.—Bids Feb. 9 for grey cast iron pile caps.

Pipe (Cast Iron).—See Water Works.

Pipe (Reinforced Concrete).—See Sewer Construction.

Pumps.—Constructing Quartermaster, Randolph Field, Tex.—Bids Feb. 16 for furnishing and installing 4 deep well turbine pumps and equipment, complete.

Pumping Unit.—U. S. Engr. Office, Memphis, Tenn.—Bids Feb. 13 for geared steam turbine drive centrifugal pumping unit.

Road Building Material.—State Highway Comsn., C. M. Williamson, Director, Jackson, Miss.—Bids Feb. 10 for approx. 4900 tons washed road gravel and 37,850 lb. struc. steel I-beams, 61 ft. over all.

Roads.—State of Maryland—Bids for 3 roads. See Construction News—Roads, Streets and Paving.

Road.—South Carolina. See Construction News—Roads, Streets and Paving.



M & M CLAMPS SPEED UP YOUR WORK

Wire Clamps

Use wire clamps on every job and save labor. They will clamp wall, beam or column forms.

Splicing Clamps

Save labor, lumber and nails. They are fast, safe and all in one piece.

Column Clamps

These clamps have perfect adjustment and are fast to place or release.

Screed Gauges standardize the operation of leveling concrete slabs. They are permanent equipment.

M & M Adjustable Shores are placed, locked and adjusted with a hammer, and safely carry a load of 4,000 pounds per Shore.

No special tools are required to place or release any M & M Form Clamps.

Samples, literature and prices mailed on request.

M & M CLAMP CO.

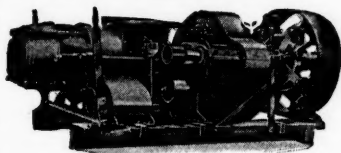
983-17th Ave., S. E., Minneapolis, Minn.

CLAY WORKING MACHINERY

For Brick, Tile and Block, from smallest to largest capacity

Write for catalogue.
Full line equipment.

J. C. STEELE & SONS
Statesville, N. C., U.S.A.



CEMENT-GUN CONSTRUCTION CO.
CONCRETE
16 years experience placing sand and cement mortar with compressed air. Call our Engineering or Contracting Department for service.

537 S. Dearborn St.
CHICAGO

Oliver Building
PITTSBURGH

Grand Central Terminal
NEW YORK

CREOSOTED

PINE AND OAK

POLES - PILES - TIES - TIMBERS

TREATING PLANTS AND YARDS

BROWNVILLE, ALA.

LOUISVILLE, KY.

BROWN WOOD PRESERVING CO.

LOUISVILLE, KY.

NASHVILLE HARDWOOD FLOORING CO.
NASHVILLE, TENNESSEE

Manufacturers of

"ACORN BRAND"

OAK, MAPLE and BEECH FLOORING

Capacity 100,000 feet per day

Branch Warehouse: JACKSONVILLE, FLORIDA
Union Terminal Warehouse Building

WALES WOOD-PRESERVING COMPANY
INCORPORATED

Treated and Untreated

PILING, POLES, CROSS TIES, MINE AND
STRUCTURAL TIMBERS

DOUGLAS FIR AND CALIFORNIA REDWOOD

P. O. Box 615

Norfolk, Va.



POLES
TIES
POSTS
PILING
CROSS
ARMS
CROSS
TIES
LUMBER

Wood preservation is the keynote of the arch supporting wood utilization. Waste in any form is deplorable—yet waste that can be avoided is worse.

ZMA or CREOSOTE pressure treated forest products are permanent—decay, dry rot and termite attack are checked. The toll of untreated lumber runs into millions.

Be wise, be safe, be sure—specify timber and lumber that is pressure treated by Eppinger & Russell Co. ZMA is ideal for interior work—is odorless and paintable.

Our engineers will place their experience and knowledge at your disposal.

EPPINGER & RUSSELL CO.

13 PARK PLACE, NEW YORK CITY

Plants—Jacksonville, Fla., and Long Island City, N. Y.

Creosoted Ties, Piling, Poles and Timbers

Creosote Oil

Docks for Ocean Vessels

American Creosote Works, Inc.

New Orleans, La.

Savannah Creosoting Co., Inc.

Savannah, Ga.

Atlantic Creosoting Co., Inc.

Norfolk, Va.

Sewer Construction.—City of Jacksonville, Fla., St. Elmo W. Acosta, Chmn., City Comsn.—Bids Feb. 18th for furnishing materials and constructing storm sewers; Materials—2100 ft. of 36-in., and 1686 ft. of 24-in. (T. & G.) rein. conc. pipe; 504 ft. of 21-in. and 348 ft. of 18-in. (B. & S.) rein. conc. pipe; c. i. manholes, rings and covers; c. i. catch basin frames and covers; Construction—for furnishing material and doing all work in connection with construction of storm sewers as follows: Stockton St., Edison Ave. to McCoy's Creek—1236 ft. of 24-in. T. & G. storm sewer; 220 ft. of 21-in. and 350 ft. of standard storm sewer manholes; Digman 18-in. B. & S. storm sewers and 48 ft. depth St., Arney St. and McCoy's Creek—2100 ft. of 36-in. T. & G. storm sewers; 50 ft. depth standard storm sewer manholes.

Sewer Construction.—Office of Constructing Q. M., Fort Monroe, Va.—Bids Feb. 17 for constructing sewage disposal plant, Heavlythan-Air Section, Langley Field; information on application.

Steel (Structural).—See Road Building Material.

Steel Fabric.—Commrs., D. C., Washington, D. C.—Bids Feb. 10 for 12,000 sheets steel fabric reinforcing wire, 8x12 ft. 6 in.

Street.—Washington, D. C. See Construction News—Roads, Streets and Paving.

Timber (Oak).—U. S. Engr. Office, Huntington, W. Va.—Bids Feb. 10 for oak timber for repairs to guide walls, Lock 10, Kanawha River.

Turbine Pumps.—See Water Works.

Turbo Generator Set, etc.—Dept. of Interior, John H. Edwards, Asst. Sec., Washington, D. C.—Bids Mar. 3 for furnishing and installing complete at Saint Elizabeths Hospital, Washington, turbo generator set and exciter, with all necessary pumps, condensers, piping, valves and instruments; open type feed water heater; zeolite water softener.

Transmission Line.—U. S. Engr. Office, Louisville, Ky.—Bids Feb. 10 for constructing transmission line, Lock and Dam 53, Ohio River.

Vacuum Tubes, Drift Sights, etc.—Bureau of Supplies and Accounts, Navy Dept., Washington, D. C.—Bids Feb. 10 for vacuum tubes, drift sights, airplane clocks, drift computers to navy yard, Washington.

Water Piping, etc.—Treasury Dept., Office of Supv. Archt., Washington, D. C.—Bids Feb. 26 for new brass water piping and plumbing and heating changes in U. S. post office, Florence, Ala.

Water Works.—City of Wichita Falls, Tex., W. E. McBroom, City Clk.—Bids Feb. 24 for filtration plant, cost \$1,000,000; Montgomery & Ward, Engrs., Harvey-Snyder Bldg., Wichita Falls; Black & Veatch, Consol. Engrs., Mutual Bldg., Kansas City, Mo.

Wire.—U. S. Coast Guard Headquarters, Washington, D. C.—Bids Feb. 9 for hard drawn bare copper wire, No. 8 B&S gage, 1/2-mil. coils in lots of 25,000 to 50,000 lbs.

Boiler Nozzles.—A new catalog devoted to seamless forged steel boiler nozzles, used for boilers, shells, tanks and pressure vessels, has been issued by the Taylor Forge & Pipe Works of Chicago, formerly the American Spiral Pipe Works. This publication, designated as No. 30-7, supercedes bulletin 29-13, and lists new types and sizes of forged steel outlets developed during the past year. Dimensions and prices cover nozzles in sizes 1/2 inch to 24 inches, in 150, 250, 400, 600 and 900 pound standards.

Cooperative Sales Agencies.—The Federal Farm Board, Washington, has issued bulletin No. 3, "Farmers Build Their Marketing Machinery," published to meet a demand for information on cooperative sales agencies formed since passage of the Agricultural

Marketing Act. The bulletin deals with organization and marketing plans of national sales agencies established by farmers' co-operatives with the aid of the Farm Board, showing territories served, membership, operating and loan policies, etc.

Agricultural Bulletin.—The Agricultural Bulletin published by the Agricultural Department of the Atlanta and West Point Rail Road Company, the Western Railway of Alabama and the Georgia Railroad has been issued for the winter of 1931. It presents a leading article by Dr. Andrew M. Soule, president of the Georgia State College of Agriculture, on "Nineteen Hundred and Thirty-One in Perspective," and other treatises on such subjects as Quality Cotton, Soil Building Demonstration, Agricultural Fairs, etc.

INDUSTRIAL NEWS OF INTEREST

Items of news about industrial, railroad or financial interests, building operations, construction work, municipal improvements, or the sale of machinery or the letting of contracts in the South or Southwest, are invited from our readers, whether they are advertisers, or subscribers, or not. We invite information of this character from readers in the North and West about their Southern business operations, as well as from Southern readers. News of value will be published just as readily when from non-advertisers as from advertisers.

New Swann Corporation Division

Theodore Swann, president of the Swann Corporation, Birmingham, Ala., announces that Wilkes, Martin, Wilkes Company, New York, manufacturers of lamp blacks and phosphates have become a division of the Swann Corporation. The latter is a holding company organized to unify operations of a number of chemical manufacturing companies and now owns, in addition to the Wilkes Company, the Swann Chemical Company and the Federal Abrasives Company, Birmingham; Provident Chemical Works, St. Louis; Iliff-Bruff Chemical Company, Hoopeston, Ill., and Swann Research, Inc., Anniston, Ala. The corporation also owns important power sites on Tennessee streams.

Propane-Butane Contracting Corporation

Associates of the C. M. Kemp Manufacturing Co., manufacturers of the Kemp System for butane dilution, announce the organization of the Propane-Butane Contracting Corporation, with offices at 405 East Oliver street, Baltimore, Md. The new organization will plan, supply equipment for and build complete butane air-gas dilution plants, or plan, supply equipment, arrange contracts and supervise construction of these units. It will also supply equipment for Butane air-gas dilution.

Ethyl Gasoline Sales

Sales in 1930 of the Ethyl Gasoline Corporation, New York, owned jointly by the Standard Oil Company of New Jersey and General Motors Corporation, aggregated nearly two billion gallons, a gain of 48 per cent over 1929. Sales in 1931 are expected to show further substantial increase, as additional refining companies are licensed to sell Ethyl gasoline. Ninety-seven refiners now hold Ethyl licenses.

Panic-Proof Revolving Doors

The manufacture of revolving doors made of wood, aluminum, bronze or other metals which may be fabricated, is announced by the Michaels Art Bronze Co., Covington, Ky. Doors are described as "panic-proof" and are equipped with a special speed control. Patents are pending.

Moves Main Office to New York

The Hahn Engineering Co., manufacturers of steam-jet ash conveyors, cast iron sectional tanks, bunkers, hoppers and gates, have moved their main office from Easton, Pa., to 30 Church street, New York, with Eugene Hahn in charge.

Utility Customers Doubled

The Central Public Service Corporation, Chicago, operating utilities in a number of Southern states and elsewhere increased the number of its customers in November, 1930, to a total of 621,783. This compares with 519,564 at the close of the preceding month and 301,074 on November 30, 1929.

Northwest District Manager

The Northwest Engineering Company, Chicago, announces appointment of Chester Coulter as district manager in the Pacific Northwest. Mr. Coulter will make his offices with the Pacific Hoist and Derrick Company, 818 First avenue, South, Seattle, Wash., and will handle the sale of Northwest shovels, cranes, draglines, pullshovels and skimmer scoops, working with Northwest agents in the states of Washington, Oregon, Idaho, western Montana and the Canadian province of British Columbia.

1931 Calendars

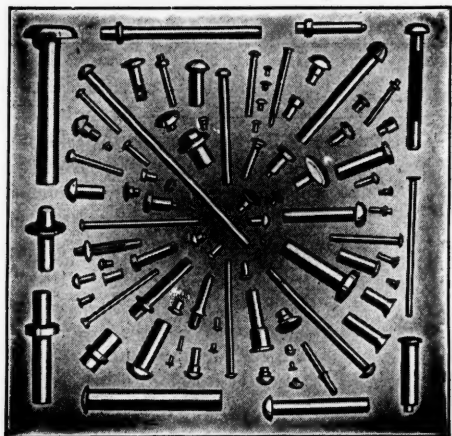
Additional 1931 calendars received by the Manufacturers Record include a railroad calendar published by the Committee on Public Relations of the Eastern Railroads, New York, from data furnished by the Bureau of Railway Economics, Washington, D. C. It pictures the number of days of railroad operation required for labor, fuel, taxes and other expenses. Other calendars include one issued by the Hercules Powder Company, Wilmington, Del., manufacturers of dynamite, explosives for coal mining, blasting powder, rifle and revolver powders, steam distilled wood turpentine, nitro-cellulose and other products; one from Lockwood Greene Engineers, Inc., New York, Spartanburg and other cities, engineers for industrial construction, and from the Woodward & Tierman Printing Company, St. Louis, Mo., printers and lithographers.

Trade Literature

(Continued from page 68)

Drills and Concrete Breakers.—The Sullivan Machinery Company, Chicago, has issued Bulletins Nos. 87-F and 87-G, devoted respectively to Sullivan Drifter rock drills and Sullivan K-5 and K-6 Buster concrete breakers. The rock drills are of classes T-5, T-6 and T-7, a new series designed for mines, quarries and construction services. The concrete breakers are compressed air tools designed for concrete breaking in both light and heavy services.

Built-Up Roofing.—The Continental Roofing Mills, Baltimore, a division of the Ruberoid Co., with offices at New York, Chicago and Boston and mills at Erie, Pa., Baltimore and Mobile, Ala., are distributing a booklet covering specifications on Ruberoid bonded built-up roofs. A separate section of the publication is devoted to a study of the requirements for applying this type of roof, including condition and preparation of roof decks, insulation, materials, application, flashing, etc.



MACHINE SCREWS

Hexagon and Square Iron and Brass Nuts.

Interchangeable Bolts and Nuts (Promco Brand) Special Screws and quality Rivets to order.

Submit samples and advise as to quantity.

Catalog for the asking.

THE PROGRESSIVE MANUFACTURING CO.
TORRINGTON, CONN.



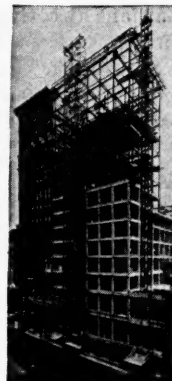
STRUCTURAL STEEL

INGALLS' QUALITY

Advantageous locations, great volume of production and careful workmanship give a service to buyers of Ingalls structural steel nowhere else obtainable.

And they have made Ingalls one of the largest fabricators of structural steel in the United States.

Quotations promptly submitted on all kind of structural steel work, bridges, standard steel buildings, Ingalls Truss (for fire proof floors and roof), also special steel plate construction for industrial uses, tanks, and warehouse stocks.



The Ingalls Iron Works Company

Main Office and Plants: Birmingham, Ala.

Eastern Plant: Verona, Pa. (in Pittsburgh District)

Branch Sales Offices: New York, New Orleans, Tampa, Atlanta, Charlotte, N. C., Tulsa, Jackson, Miss.

... STANDARD ...
STEEL BUILDINGS

BOLTS
NUTS
RIVETS

OLIVER

OLIVER IRON AND STEEL CORPORATION
PITTSBURGH, PA.

FORGINGS
UPSET RODS
FORGED TOOLS

High Temperature Cements

FIREBOND THERMOLITH



REFRACTORIES

Fireclay High-Alumina Silica Chrome Magnesite

Acid-Proof Brick

HARRISON-WALKER REFRACTORIES CO.
World's Largest Producer of Refractories Pittsburgh, Pa.

QUALITY PIG IRON
PLUS

Intelligent Cupola Service

SLOSS-SHEFFIELD STEEL & IRON CO.
BIRMINGHAM, ALA.

TAYLOR MADE FIREBRICK

HIGHEST QUALITY—KENTUCKY FIRECLAYS
UNEXCELLED FOR POWER PLANTS AND STEEL FURNACES
Also Sillimanite and Diaspore Refractories

THE CHAS. TAYLOR SONS CO., Cincinnati, Ohio

Manufacturers of Refractories for 63 years.
PLANTS AT CINCINNATI AND TAYLOR, KENTUCKY

EARLE

The Earle Gear & Machine Co.

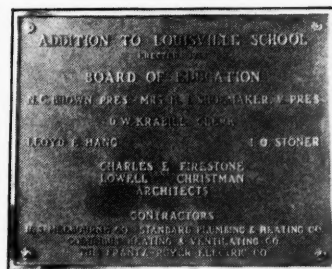
4719 Stenton Avenue,
Philadelphia, Pa.

110 State St., Boston, Mass.
95 Liberty St., New York City

Cut Spur, Bevel, Herringbone
and Worm Gears

All sizes. Every description. Operating Machinery for Bridges, etc.
"Lee Simplex" Cold Metal Saws.

GEARS



**BRONZE
TABLETS**

Architectural Bronze

for Banks, Buildings, and Mausoleums

J. S. HEATH CO., Waukegan, Ill.

Louisiana Development Planned

Plans to tell the country of the natural resources of Louisiana as well as the agricultural and industrial opportunities of the state are in preparation by the Louisiana Creative Industrial and Agricultural Association, recently organized at Shreveport. Facts have been assembled on clay and general mineral deposits, timber and other material assets of the state.

As the foundation for a publicity campaign by radio and other methods, the association has engaged a chemical and mechanical engineer of wide repute, and will construct and maintain an adequate laboratory for research, chemical experiments and analyses. Designing of machinery and other items to be manufactured and sold will be made a feature also.

The plans include construction of two or more factories in which useful household articles will be manufactured, chiefly from otherwise wasted wood, such as now is burned or destroyed. The engineer is said already to have designed nearly 100 articles to be made from wood, and several types of machinery, for some of which patents and copyrights have been asked.

Membership in the association is to be statewide, and the project is expected "to pay handsome dividends to the state in increased population, increased agricultural production, increased industrial output, and the exportation of large volumes of merchandise and other valuable necessities which now are imported into the state."

Temporary headquarters have been established in the Ricou-Brewster Building, Shreveport. H. S. Lonergan is president and L. I. Powell is vice-president.

Plan for Better Cottonseed

New Orleans, La.—Plans have been announced by C. O. Moser, vice-president and secretary of the American Cotton Cooperative Association, for the improvement of the quality of cottonseed in the United States. Mr. Moser regards the step as one of the most constructive that has been taken in the past 40 years in the cotton industry. C. A. McLendon, seed expert of Atlanta, has been engaged to conduct the program, which will involve the establishment of seed centers in each of the cotton belt states. Technical advice will be supplied by the Bureau of Plant Industry of the Department of Agriculture, while field work will be done by the Association aided by farm agents and extension services. The 1931 acreage planted to cotton is expected to show a substantial reduction, although it is anticipated by the

Association that there will be an increased yield of six or seven per cent because of better weather conditions and smaller damage by the boll weevil.

Hardwood Lumber Conditions

Increase in hardwood lumber shipments to the United Kingdom and continental Europe in 1930 over 1929 were reported to the National Lumber Exporters Association at a recent meeting, by Edward Barker, director of the organization's foreign affairs.

"The lumber market has passed the low point; the bottom has been reached and left behind," said Joseph Thompson of Memphis, president. "A slow, but steady, improvement will be noticed during the next few months."

Headquarters of the organization possibly may be moved from Baltimore to Memphis.

At a meeting of the Hardwood Manufacturers Institute, an investigation of handicaps to the hardwood industry and recommendations for removing them were delegated to a committee named by George H. Henderson of the Angelina Hardwood Company, Keltys, Texas, on his election to the presidency of the organization, in succession to J. W. Bailey of Laurel, Miss. The investigation was undertaken on a motion by V. M. Scanlon of the Lamar Lumber Company, Bogalusa, La. As soon as the committee is ready to report, a special meeting will be called to hear it.

Adoption of "a firm price policy" by the members, individually, was approved in a resolution which was adopted, and the members were urged to adhere to prices which they may establish.

Officers named with Mr. Henderson were: First vice-president, B. B. Burns, Ritter-Burns Lumber Company, Huntington, W. Va.; second vice-president, Mr. Scanlon; treasurer, H. Curtis Dewey, Chapman & Dewey Lumber Company, Memphis. J. H. Townshend was unanimously re-elected as executive vice-president.

As secretary-manager of the Southern Hardwood Traffic Association, Mr. Townshend reported that in 1930 the bureau filed freight claims aggregating \$150,297, and recovered \$123,068 of that amount for association members. More than 300,000 rates and routings were quoted to members.

One hundred million acres in the South are better suited for growing lumber than for any other purpose, and should be utilized in that manner, said Gordon E. Reynolds of Albany, Ga., president of the Southeastern Hardwood Manufacturers Club. His company, he added, has set aside 20,000 acres of land near Albany as a timber and game preserve, under federal supervision.

Danville Strike Ends

Four months after its inception, the strike at the Riverside & Dan River Cotton Mills, Danville, Va., ended on January 29, when Francis J. Gorman of the United Textile Workers called on members of the union "to return to their work as promptly as places can be found for them." In the period of the strike, the company had built up its operating force to 3700 workers. It is estimated that 4000 hands were involved in the strike, which was attributed by some persons to agitation by leaders in organized labor and other outsiders.

Atlanta Grows in Importance as Railroad Center

Atlanta, Ga.—Payrolls amounting to approximately \$225,000 per year will result from the location of the Louisville Freight Tariff Bureau and the Richmond Freight Tariff Bureau, which have recently been consolidated with the Atlanta Freight Tariff Bureau, under the name of the Southern Freight Association Tariff Bureau in Atlanta.

The consolidation will result in the acquisition of 133 new workers, 83 from Louisville and 50 from Richmond.

In addition to the Southern Freight Association, there are located here the Southeastern Passenger Association, Southern Classification Committee, and the Southern Weighing and Inspection Bureau. Also, Atlanta is the headquarters of three railroad companies and of the General Office of the Southern.

Frisco Lines' New Industries

Three hundred and twenty-five new industries, with a total capital investment of \$9,329,000, were located on lines of the Frisco System in 1930, says a report by J. B. Hilton, industrial commissioner of the company. Although somewhat fewer in number than in 1929, these new industries represent much more in investment money. Prominent in the list are General Mills, Enid, Okla.; Pittsburgh Plate Glass Company, Henryetta, Okla., and Newport-Armstrong Company, Pensacola, Fla.

200 Men Resume Work

Birmingham, Ala.—After a shutdown for a few weeks, the two plants in Woodlawn of the Connors Steel Co. have resumed operations with 200 workmen. According to G. W. Connors, Jr., vice-president of the company, orders on hand will warrant operation of the mills at nearly full capacity, and additional orders are coming in.

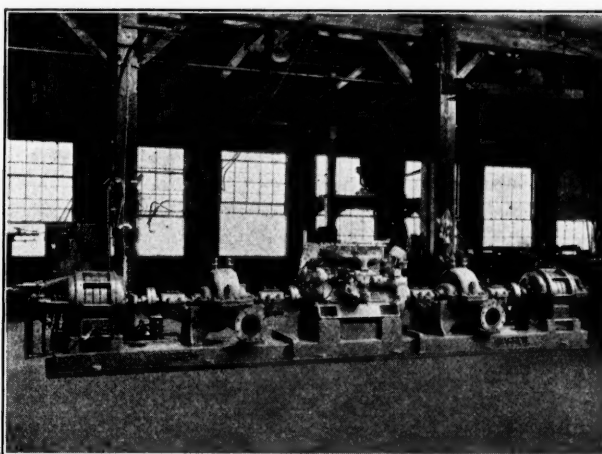
FOR HOSPITALS—BRIDGES—FIRE PUMPS

Wherever continuous power is imperative



**Sterling
High Duty
Internal
Combustion
Engines**

12 to 565 B.H.P.
Gas or Gasoline



Unique application at Waltham State Hospital. Two Warren centrifugal pumps, with motor drive, employ a Sterling 100 H.P. engine for reserve. In emergency coupling bolts are quickly replaced and the Sterling takes the load. Sold through F. A. Mazzur & Co., Boston.

STERLING ENGINE COMPANY

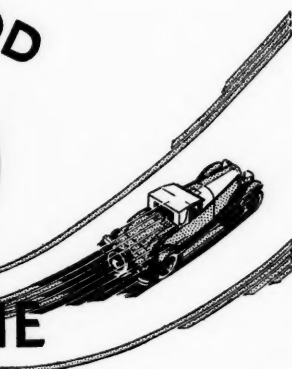
1270 Niagara Street, Dept. 27
BUFFALO, N. Y.

900 Chrysler Building
NEW YORK, N. Y.

THAT GOOD



GASOLINE



POWER—PICK-UP
MILEAGE

400° F END POINT
ANTI-KNOCK

AT NO EXTRA COST

At the Sign of the Orange Disc

GULF REFINING CO.



LUNKENHEIMER

Bronze Regrinding
Globe Valve



THE LUNKENHEIMER CO.

—QUALITY—

CINCINNATI, OHIO, U.S.A.
NEW YORK, CHICAGO, BOSTON, PHILADELPHIA
PITTSBURGH, SAN FRANCISCO, LOS ANGELES
HARTFORD, DETROIT, ST. LOUIS, MILWAUKEE, ST. PAUL

Buy from the local
Lunkenheimer Distributor

Railroad Supremacy

UNDER the heading, "The Railroads—A New Era for an Old Industry," J. S. Wilson, Jr. & Company, Baltimore, have issued a booklet presenting a brief analysis of the transportation field—railroads, waterways, motor transport, pipe lines and airways. The importance of the railroad is emphasized in the following:

"The transportation machine as represented by the railroads of the country consists of 249,433 miles of track. It represents, as of 1929, an investment of \$25,465,036,000. The total railways' capitalization as of this date was \$22,306,752,000, which was represented by \$12,459,441,000 bonds and \$9,847,311,000 stock. The ratio of debt to capital was 55.9 per cent. The net income available for dividends was \$977,229,694. The ratio of earnings available for dividends to stock outstanding was 9.92 per cent.

"During the year 1929 the railroads of the country employed an average of 1,660,920 people. There was paid to them the sum of \$2,896,566,000. This compensation represented 46.13 per cent of the total revenues of the railroads and represented 64.26 per cent of the railroads' total expenses. This sum paid in compensation to employees represented a sum of approximately 2.3 times the amount paid for the use of capital as represented by both bonds and stock. The railroads expended \$1,611,000,000 for supplies for maintaining the property and paid \$396,682,634 in taxes.

"During last year the railroads of the country carried 780,468,000 passengers 31,074,135,000 passenger miles, for an average journey of 39.81 miles per passenger. Of these passengers only 97 were killed. Insurance statistics show that there are fewer places where human life is as safe as in a modern steel passenger coach.

"For the single year ended December 31, 1929, the railroads charged to capital account and operating expenses \$297,929,082 for the 'Improvement of Safety and Protection,' which item included grade crossings, train control and signal devices.

"In the efficient handling of freight the railroads have accomplished wonders in recent years. The average speed of all freight trains has been stepped up to 13.7 miles per hour between terminals, including yard and road delays, no matter from what cause. Fast expresses run on regular schedule with the precision of passenger trains. Third morning deliveries are made between Chicago, St. Louis and the Atlantic Seaboard points, a distance of 900 to 1000 miles.

"The Bureau of Railway Economics in its report entitled 'An Economic Survey of Inland Waterway Transportation in the United States,' October 15, 1930, includes an analysis of the commercial freight traffic within the confines of the United States for 1928, showing its dis-

tribution among the several transportation agencies."

Excluding the Great Lakes System, the distribution is as follows:

	Ton Miles	Per Cent
Steam Railways	477,244,000,000	90.2
Motor Trucks (Inter-urban)	10,276,000,000	1.9
Electric Railways	1,270,000,000	.2
Pipe Lines	30,000,000,000	5.7
Airplane	1,210,000,000	.2
Inland Waterways (excluding Great Lakes)	9,336,000,000	1.8
	529,336,000,000	100.0

Of particular interest among the subjects presented—the present status of the railroads as to their relative importance in the transportation field, service accomplishments of the railroads and competitive forms of transportation—is a review of the purpose of the Transportation Act of 1920 and Recapture Clause outlining the significance of the 44th annual report of the Interstate Commerce Commission.

Sani-Onyx in Bottling Plant

The floor and sidewalls of the syrup room in the Coca Cola Bottling Company's plant at Greenville, S. C., are Sani-Onyx, manufactured by the Marietta Manufacturing Co., Indianapolis, Ind., and furnished by the Central Glass Company of Virginia, Bristol, Va. In the MANUFACTURERS RECORD of January 22, through an error, another product was stated to have been used on the floors and sidewalls of the room.

Great Exposition Planned

Exhibits of direct interest to at least 75 individual industries will feature the Exposition of Chemical Industries scheduled for the week of May 4 to 9, inclusive, at the Grand Central Palace, New York. Scores of other industries and branches of various industries also will be interested.

Many advances in electrical equipment for control of chemical and non-chemical processes in laboratory and factory will be presented by exhibitors. On thermoelectric lines will be shown an electric oven in which a blast of hot air is circulated horizontally at high velocity over the contents, passing between shelves and racks and thereby saving time, improving heat distribution and assuring more uniform temperature control. Hundreds of other appliances and devices and implements, with various processes and methods, in many lines, also will be exhibited.

Peanut Flour

A new peanut product is being developed as a result of chemical research, according to the December issue of the Industrial Bulletin issued by Arthur D. Little, Inc., Cambridge, Mass. The new product is a flour, so-called, which mixed in proper proportions with wheat flour, gives a bread or cake that contains a large proportion of digestible protein. This flour is usually made from the cake after the oil has been expressed from the shelled and blanched nuts. It is recommended for use in the diet of diabetic patients, as it contains only a small proportion of sugars.

Some 260 different products, most of these not yet on a commercial basis, are reported to have been developed from the peanut, its shells and skins. Biological chemists have discovered that peanuts have a large percentage of digestible protein and fat, and that the nut contains the water soluble and fat soluble vitamins necessary to a normal diet. It has been shown that refined peanut oil is one of the best of the salad oils, and that the less-refined pressings are well adapted to soap manufacture. Commercial research has developed merchandising methods, designing appropriate containers for shelled and salted nuts, for peanut confections and other products sold in small packages at retail; and the advertising expert has devised suitable publicity, even going so far as to prepare appropriate slogans. The household research workers have developed a number of new dishes in which peanut products are featured. Peanuts long have been important in the confectionery trade.

All these activities have resulted in the establishment of the peanut growing industry as one of the important farming industries of the South. The peanut is a good cash crop, as it is not only comparatively immune to pests, but as a result of its ability to fix nitrogen from the atmosphere, it requires less fertilizer than many other crops.

In 1929 about 1,360,277,000 pounds of peanuts were harvested in the South, and the farm value of the crop was \$49,247,000.

Color for Aluminum

Color finishes on aluminum are now said to be possible and practicable through the use of chemical baths or electrochemical treatments. Aluminum oxide is described as the coloring agent. While aluminum oxide is pure white, the application of a coating to commercial aluminum or its alloys is said to impart color by the minute particles of impurities or alloying constituents in the parent metal.

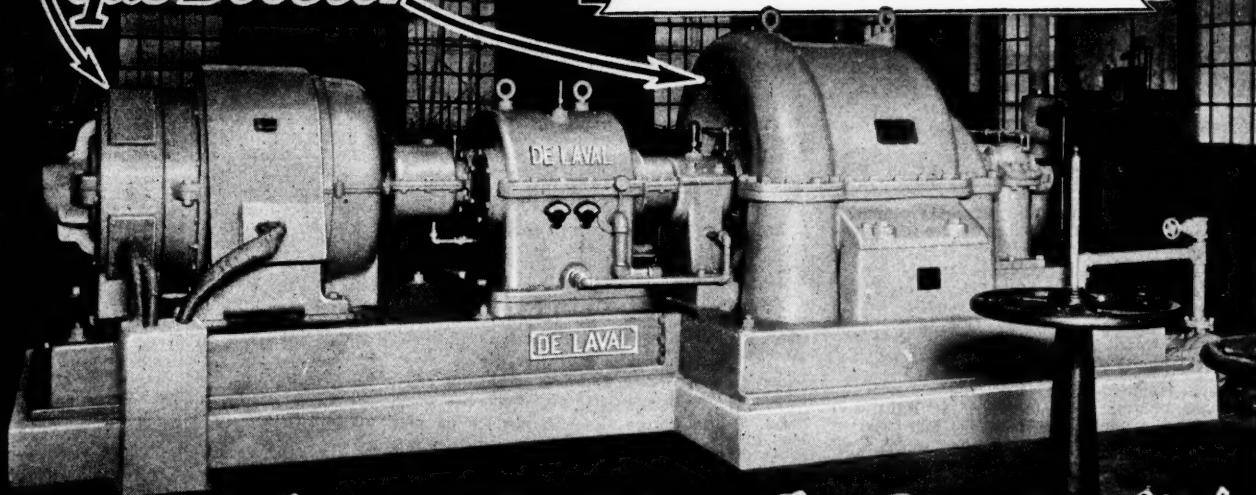
Standard Speeds for Both

*Electric Motor
and
Centrifugal
Gas Booster*

THE use of the DE LAVAL DOUBLE HELICAL GEAR as a speed increaser between the 1750 rpm. motor here shown driving a DE LAVAL MULTISTAGE CENTRIFUGAL GAS BOOSTER of 16,650 cu. ft. per min. capacity, against 7 lbs. pressure, results—

- 1—In economy of first cost of both compressor and motor,
- 2—In high efficiency for motor and compressor,
- 3—In smooth and quiet operation, and
- 4—In reliability.

De Laval gears are built for all powers and speed ratios, and De Laval compressors for all capacities and for pressures up to 100 lbs. per sq. in.



De Laval Steam Turbine Co., Trenton, N.J.



AN ERIE

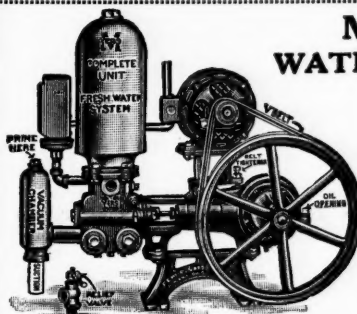
Extraordinary feats are accomplished with this
DRAINAGE PUMP
Speed is adjusted to suit conditions. Pumps furnished belted or directly connected.

ERIE PUMP & ENGINE WORKS
154 Glenwood Ave. Medina, N. Y.

ARTESIAN WELLS

**ANY SIZE ANY DEPTH
DRILLED ANYWHERE**

VIRGINIA MACHINERY & WELL COMPANY, Inc.
Dept. M. R. RICHMOND, VA



MYERS WATER SYSTEMS

Quality, service, price—determining factors in business success. For those who sell and install pumps and water systems, the Myers Line satisfactorily meets these conditions. Styles and sizes in a wide capacity range

offer unusual sales advantages for progressive dealers. Whatever your local water conditions may be, write or wire for information and catalog.

The F. E. MYERS & BRO. CO., Ashland, O.



Water Works Valves "Built to a Standard"

Write for details—today!

VOGT BROTHERS MFG. CO.

INCORPORATED
LOUISVILLE · KENTUCKY

SAND PUMPS

A wide range of types in sizes 4" to 15"

For belt drive and for direct connection to motor

Illustrated booklet on request

GEORGIA IRON WORKS
AUGUSTA, GA.

WE are the sole and only manufacturers of the machine known under the trade name and trade mark

"CEMENT GUN"

Let us aid you by giving you full information how your new construction or repair is made with this machine and its product

GUNITE

Experience Has Taught Us All Best Methods

CEMENT GUN CO., INC., Allentown, Penna.

ROTURBO CENTRIFUGAL

PUMPS

Manistee Iron Works Co., Manistee, Michigan

FINANCIAL NEWS

Bond Issues Proposed

Ala., Birmingham—City voted \$500,000 park improvement bonds and defeated \$500,000 for public improvements. 1-1

Ala., Birmingham—Jefferson County Bd. of Revenue called election for Mar. 10 on \$1,500,000 bonds for completing courthouse and jail now under construction. 12-18-30

Ala., Phenix City—City plans voting on \$100,000 water works bonds. 1-1

Ark., Russellville—Pope County, J. Q. Hill, County Judge, votes Feb. 24 on \$150,000 bonds for building courthouse. 12-11-30

Ga., Columbus—City, H. B. Crawford, has high bid from Hibernia Securities Co. and Courts & Co., Atlanta, at \$52,646.49 for \$49,000, 4½% refunding bonds. 1-1

Ga., Waycross—City votes Feb. 28 on \$175,000 refunding bonds. 1-1

La., New Orleans—Orleans Levee Bd., A. L. Shushan, Pres., authorized sale of \$1,500,000 bonds; soon offer for sale.

La., Slidell—City votes Feb. 10 on \$40,000 sewer bonds.

Miss., Biloxi—City, J. J. Kennedy, Mayor, votes Feb. 17 on \$50,000 bonds for dredging and constructing docks. 1-15

N. C., Smithfield—Johnston County, Cora Belle Ives, Clk., opens bids Feb. 11 on \$185,000, not to exceed 5% highway bonds. 1-29

N. C., Spruce Pine—Town, S. B. Cannon, Clk., sell \$35,000, 6%, \$1000 denom. public hospital bonds Feb. 10.

Okla., Hominy—City, G. H. Blackwood, Clk., rejected bids on \$150,000 electric light and power bonds; new bids due Feb. 10; interest to be named by bidder. 12-25-30

S. C., Beaufort—City, Chas. Knott, Acting City Mgr., opens bids Feb. 10 for \$36,000, not to exceed 6%, \$2,000, \$1,000 or \$500 denom. funding bonds.

S. C., Greenville—City votes Mar. 3 on \$525,000 bonds.

Tenn., Altamont—Grundy County authorized by Legislature to issue \$30,000, not exceeding 6% refunding bonds.

Tenn., Lauderdale—Lauderdale County authorized by Legislature to issue refunding and tax anticipation bonds.

Tenn., Maryville—City has bill before Legislature asking permission to authorize issuance of \$100,000 bonds for building viaduct.

Tenn., Nashville—City authorized by Legislature to issue \$500,000, not to exceed 6% school site purchase, building and equipment notes.

Tex., Angleton—Brazoria County Road Dist. No. 29, J. T. Loggins, County Judge, opens bids Feb. 9 for \$500,000, 5½%, \$1000 denom. coupon road bonds. 1-1

Tex., Beaumont—City, Raymond Edmonds, City Clk., opens bids Feb. 10 for \$400,000, 4½%, \$1000 denom. coupon bonds; \$200,000, street and highway; \$150,000, sewerage; \$50,000, water works. 1-8

Tex., Beaumont—City may vote on \$100,000 fair bonds.

Tex., Brownsville—Brownsville Navigation Dist., Z. A. Rosenthal, City Mgr., soon receive bids for \$170,000 water works construction bonds.

Tex., Fort Stockton—Fort Stockton Independent School Dist., H. H. Buta, Pres., School Bd., opens bids Feb. 10 for \$100,000, 5% bonds. 1-22

Tex., Gainesville—Cooke County plans bond issue to provide county's share of cost of paving State Highways 5 and 40.

Tex., Gonzales—Gonzales County Commrs. Court plan calling election on highway bond issue.

Tex., Muleshoe—Bailey County, J. E. Adams, County Judge, advises will not have bonds for sale. 1-22

Tex., New Braunfels—City, Hilmar Fischer, Mayor, votes Feb. 10 on \$35,000 bonds for building conc. bridge over Comal River leading to Warnecke Camp. 1-22

Tex., Nixon—City defeated \$35,000 street and building bonds. 1-8

Tex., Rio Grande—Rio Grande Independent School Dist., Oscar T. Vale, Sec., School Bd., opens bids Mar. 1 for \$100,000, 5% school bonds.

Tex., Uvalde—Uvalde County, Green B. Fenley, Jr., County Judge, opens bids Feb. 14 on \$175,000 grading, draining bonds. 1-22

Tex., Waco—City Comsn., E. E. McAdams, City Mgr., ordered sale of \$300,000 bonds on Feb. 17: \$60,000, school; \$70,000, storm sewer; \$100,000, street; \$30,000, sanitary sewers; \$40,000, bridges.

Va., Bowling Green—Town, L. E. Martin, Mayor, soon call election on \$15,000, 5% sinking fund water bonds.

Va., Fairfax—Town Council, Thomas P. Chapman, Mayor, plans issuing water system bonds at once recently voted.

Va., Richmond—City Council approved ordinances authorizing bond issues of \$250,000 curbing and guttering generally and \$100,000 for smooth paving.

Va., Salem—Roanoke County may vote on \$200,000 bonds for rebuilding high school.

W. Va., Wheeling—Ohio County defeated \$3,800,000 highway and street repair bonds. 1-15

W. Va., Williamson—City, D. M. Good, City Engr., advises not planning bond election. (Recently noted votes on \$20,000 water works bonds, 11-27-30)

Bond Issues Sold

Ala., Dothan—Houston County Bd. of Revenue sold \$100,000 funding bonds to Dothan Bank & Trust Co., Dothan, and First National Bank, Ashford, at par.

Ala., Montgomery—City recently sold \$500,000, \$25,000 denom. tax anticipation certificates of indebtedness to Marx & Co., Birmingham.

Ark., Newport—City sold \$17,500 sewer bonds to W. B. Worthen & Co., Little Rock.

La., Baton Rouge—East Baton Rouge Parish Police Jury sold \$100,000, 5% excess revenue bonds to Weil, Roth & Irving, Cincinnati, Ohio, at par, accrued interest and \$25,000 premium.

La., Ville Platte—Evangeline Parish School Bd., Dr. J. C. Viridine, Pres., sold \$10,000, 6%, \$100 denom. school Dist. No. 5 bonds to Robert Budd, Ville Platte, at par. 1-1

Md., Towson—Baltimore County Commrs. sold \$500,000, 4½%, \$1000 denom. Metropolitan Dist. bonds to Strother, Brogden & Co., Maryland Trust Co., both Calvert and Redwood Sts., and Mackubin, Goodrich & Co., 222 E. Redwood St., all Baltimore, at 106.74. 12-25-30

Miss., Columbia—Hugh White, Columbia, purchased \$20,000 Bunker Hill School bonds.

Miss., Holly Springs—City, Mayor and Bd. of Aldermen, sold \$36,000, 6% paving bonds to M. & F. Bank, and Bank of Holly Springs, each taking \$18,000 at par.

N. C., Greensboro—City, E. G. Sherrill, Clk. and Treas., sold \$275,000 tax anticipation notes to T. A. Uzzell, at 5½%.

N. C., Greensboro—Guilford County sold \$300,000 revenue anticipation notes to T. A. Uzzell, Greensboro, as 4½s, at 100.01.

N. C., Lumberton—Robeson County sold \$65,000 tax anticipation notes to W. O. Gay & Co., New York, at 6%.

Okla., Hollis—Harmon County sold \$325,000 road bonds to Brown-Crummer Co., Wichita, Kan.

Okla., Muskogee—Muskogee County Commrs. sold \$250,000, 4½%, \$1000 denom. road bonds to Otis & Co., Cleveland, Ohio, at \$365 premium. 1-22

Okla., Tulsa—Tulsa County Union Consolidated School Dist. No. 2 sold \$14,000 bonds to Exchange National Co. at par.

Tenn., Memphis—Bd. of Education of Memphis City Schools, G. W. Garner, Sec., sold \$800,000, \$100,000 denom. bonds to First Securities Corp., branch of First National Bank, at 2¼% with \$250 premium. 1-22

Tenn., Memphis—City, D. C. Miller, Clk., sold \$1,250,000, 2¾% revenue notes to First Securities Corp., branch of First National Bank, at par, accrued interest and \$400 premium. 1-15

Tex., Brownsville—Cameron County sold \$660,000 Precinct No. 4 road bonds to C. W. McNear & Co.; and A. C. Allyn & Co., both Chicago, Ill.

Tex., Cotulla—La Salle County, G. A. Welhausen, County Judge, sold \$90,000 courthouse and jail bonds to Prudden & Co., Toledo, at 96.20. 1-1

Tex., Liberty—Liberty County sold \$210,000, 6% courthouse warrants to J. R. Phillips Investment Co., Houston.

Tex., Sherman—City, J. A. Henderson,

Clk., sold \$90,000, 5% school bonds to Brown-Crummer Co., Wichita, Kan., at 101.90. 1-15

Building & Loan Associations

Ark., Little Rock—Liberty Loan & Realty Co., 705 W. Seventh St., capital \$10,000, formed by J. W. Strawn and J. W. Tucker, of Strawn-Tucker Furniture Co.

New Financial Corporations

Ala., Roanoke—City Bank & Trust Co., capital \$50,000, chartered; W. H. Wright, Pres.; P. M. Lightfoot, Cashier.

Ark., England—England Credit Corp., capital \$50,000, formed as subsidiary of Intermediate Credit Bank, St. Louis, Mo.; Ben Morris, Pres.; Harry E. Ehlers, Sec.-Treas.

Ky., Alexandria—Bank of Alexandria, T. W. Byrd, Pres., increasing capital stock.

Ky., Newport—Central Savings Bank & Trust Co., capital \$100,000, chartered; Otto Wolff, Gus Sauer.

Md., Baltimore—Keystone Finance Co., 2907 Norfolk Ave., chartered; Benjamin Levi-coff, 4231 Viola St., Philadelphia, Pa.

Tenn., Nashville—Jack M. Bass & Co., Nichol Bldg., chartered; Jack M. Bass, 400 Union; Thomas A. Lupton; specialize in Tennessee municipal bonds and local stocks and bonds.

American Exchange Trust Co., A. B. Banks, Pres., Little Rock, Ark., completed plans for reopening and submitted them to State Banking Dept. for approval.

Bank of Commerce & Trust Co., E. T. Robinson, Chmn. of Bd., Mansfield, La., increasing capital stock to \$250,000.

Bank of Mars Hill, N. W. Anderson, Pres., Mars Hill, N. C., authorized by John Mitchell, Ch. Bank Examiner, Raleigh, to reopen.

First National Bank, H. M. McAden, Pres., Charlotte, plans reorganizing with \$300,000 to \$500,000 capital.

First National Bank, J. Hubbard, Pres., and New Boston National Bank, J. H. Simms, Pres., both New Boston, Tex., merged.

U. S. Steel Statement

Earnings of the U. S. Steel Corporation, New York, for 1930, amounted to \$9.12 per common share, as compared to earnings of \$21.19 in 1929, \$12.50 in 1928 and \$9.30 in 1927. For the final quarter of 1930, the company earned 70 cents per share on 8,687,435 shares outstanding at the end of the year, according to its statement, which compared with \$2.06 in the preceding quarter and \$4.14 a share on 8,132,840 shares in the final quarter of 1929. The corporation's total net earnings for 1930 amounted to \$157,755,791, as compared with \$265,838,932 for 1929, while its net for the year, after deduction of depreciation charges, interest, etc., was \$104,465,774, as against \$197,592,060. Preferred dividends in each year amounted to \$25,219,677 and common dividends in 1930 to \$60,354,424 or \$3,494,616 less than in 1929. The retirement of funded debt in 1929 reduced total interest charges on bonds of both parent and subsidiary companies from \$14,944,870 paid in that year to \$5,640,065 paid in 1930.

Baltimore and Ohio Report

Railway operating revenues of the Baltimore and Ohio Railroad Company for the 12 months of 1930 amounted to \$206,660,435, as compared with \$245,418,776 for 1929. Operating expenses amounted to \$153,142,374 for 1930, as against \$180,570,034 for 1929, and net railway operating income to \$40,248,614, as against \$49,184,110. For December, 1930, net railway operating income amounted to \$3,067,790, as compared with \$2,441,903 for December, 1929, an increase of \$625,887.

**YORK
VAULTS**

EIGHT VAULT DOORS

TO the impressive list of York Vault installations, the name of another great financial institution is added. The equipment in this instance includes eight vault doors, each 18 inches in net solid thickness, four of which have just been installed and four are about to be installed in six branches of the

CENTRAL HANOVER BANK AND TRUST COMPANY

NEW YORK CITY

located at

Broad Street
Church Street
34th and Madison

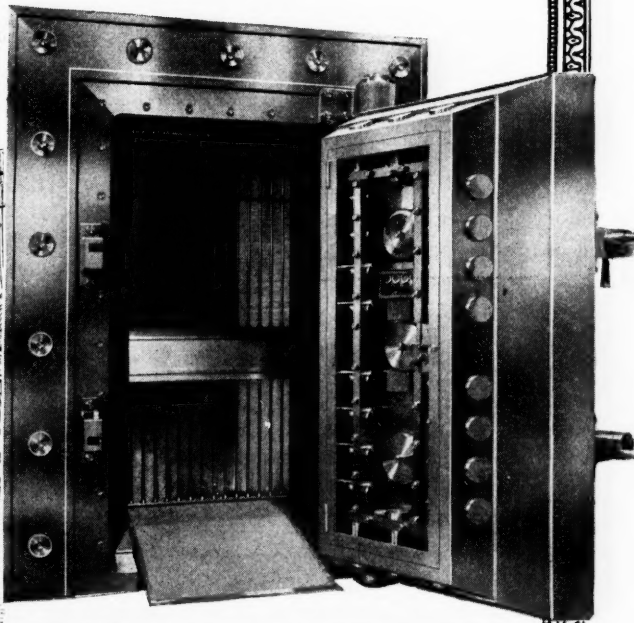
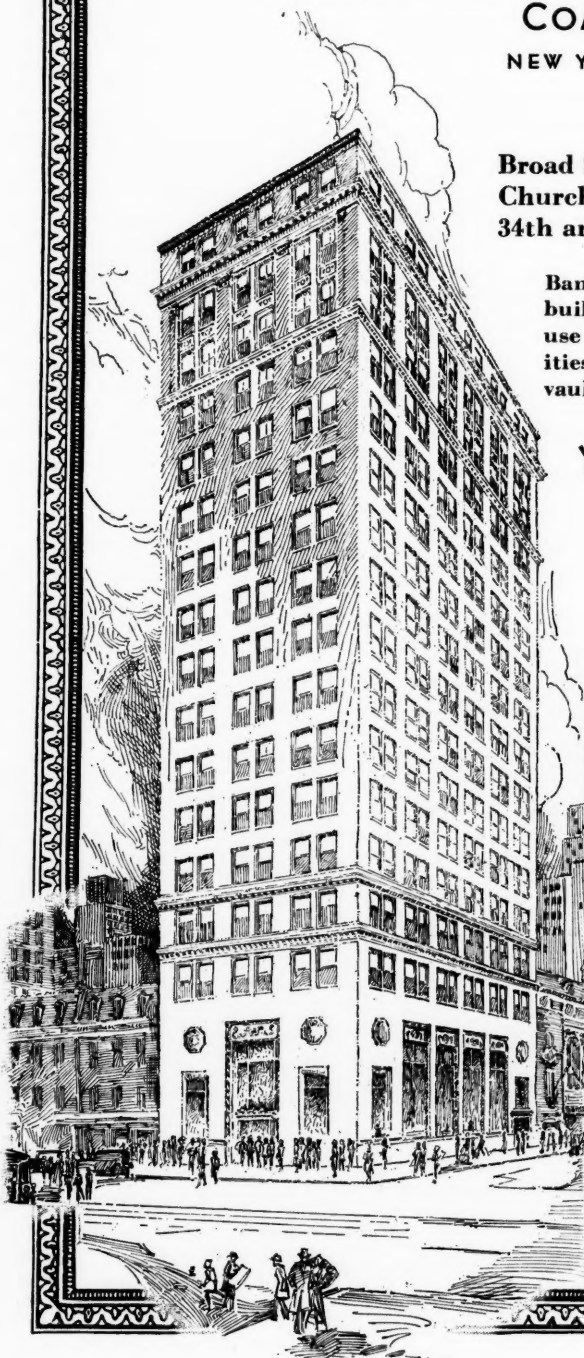
Herald Square
Jay Street
42nd and Madison

Bankers, Architects and Engineers planning to build or remodel bank vaults are invited to make use of our long experience and unsurpassed facilities, which are adequate to build the largest vaults yet designed.

YORK SAFE & LOCK CO.

York, Pennsylvania

Branches in Principal Cities



Copper in 1930

THE copper industry last year was severely affected by the general worldwide industrial depression. Production and consumption, which made new high records in 1929, dropped sharply, according to the United States Bureau of Mines.

Although production and consumption in 1930 both were at a rate far below 1929, production was greater than consumption, causing a substantial increase in stocks. Estimated stocks of refined copper at domestic refineries at the end of the year were the largest on record, 667,000,000 pounds, more than double the reserve of 306,000,000 pounds at the end of 1929 and 1928. Blister stocks, which first reflect any change in rate of production, were materially lower at the end of 1930 than at the end of 1929.

Falling consumption and increasing stocks were accompanied by a severe drop in price of refined copper. It held at 17.77½ cents a pound at refinery from the middle of April, 1929, to the middle of April, 1930, when it dropped 4 cents, and then reached 10.07½ cents on December 23.

Imports of unmanufactured copper established a new high record in 1929 while exports of metallic copper decreased; in 1930, for the first time in 50 years, imports exceeded exports.

Smelter production of copper from domestic ores in 1930, as determined by the Bureau of Mines from reports of smelters showing actual production for

11 months and estimated production for December, was 1,375,000,000 pounds, compared with 2,003,000,000 pounds in 1929. The 1930 production is 31 per cent lower than 1929, and is the smallest recorded since 1922. Estimated smelter production from domestic ores for December as reported by the smelters, was approximately 100,000,000 pounds which is about 16,000,000 pounds lower than the average for the 11 months preceding.

Production of new refined copper from domestic sources, determined in the same manner as smelter production, was about 1,485,000,000 pounds, compared with 1,983,000,000 pounds in 1929. In 1930 the production of new refined copper from domestic and foreign sources amounted to about 2,230,000,000 pounds, compared with 2,740,000,000 pounds in 1929, a decrease of 510,000,000 pounds or 19 per cent. Production of secondary copper by primary refineries dropped from 334,000,000 pounds in 1929 to about 250,000,000 pounds in 1930, or a decrease of 84,000,000 pounds. Thus the total primary and secondary output of copper by refineries was 19 per cent lower in 1930 than in 1929, being about 2,480,000,000 pounds in the past year compared with 3,074,000,000 pounds in 1929.

The quantity of new refined copper withdrawn on domestic account during the year was about 1,277,000,000 pounds, compared with 1,779,000,000 pounds in 1929, a decrease of 502,000,000 pounds or 28 per cent. The method of calculating

domestic withdrawals is shown as follows:

NEW REFINED COPPER WITHDRAWN FROM TOTAL YEAR'S SUPPLY ON DOMESTIC ACCOUNT, 1929-1930

	1929 Pounds	1930 Pounds
Refinery production of new copper from domestic sources...	1,983,000,000	1,485,000,000
Refinery production of new copper from foreign sources....	757,000,000	745,000,000
Imports of refined copper (December, 1930, estimated)...	134,000,000	89,000,000
Stocks of new refined copper on January 1	114,000,000	306,000,000
	2,988,000,000	2,625,000,000
Exports of refined copper (ingots, bars, rods or other forms) (December, 1930, estimated)...	903,000,000	681,000,000
Stocks December 31..	306,000,000	667,000,000
	1,209,000,000	1,348,000,000
Total withdrawn on domestic account...	1,779,000,000	1,277,000,000

Concrete Products Census

The Census of Manufactures taken in 1930 indicates that the total value of concrete products shipped or delivered in 1929 by establishments in the United States engaged primarily in the manufacture of these commodities amounted to \$90,610,665, a decrease of 2 per cent as compared with \$92,506,987 reported for 1927, the last preceding census year. The total for 1929 is made up as follows: building materials, \$47,705,216; conduits and pipes, \$22,229,214; circular structures, \$2,202,571; household and other accessories, \$2,619,229; burial vaults, \$3,045,166; monuments and grave markers, \$80,155; paving materials, \$669,275; poles and posts, \$1,387,132; premixed concrete, \$7,442,241; other concrete products, \$1,939,800; concrete products not reported in detail, \$1,290,666.

This industry, as defined for census purposes, embraces establishments engaged wholly or principally in manufacture of concrete products and does not cover concrete construction work on buildings, bridges, etc.

Too Valuable to Miss

Unwilling to miss a single issue of the MANUFACTURERS RECORD, Chas. J. Michel of the John P. Michel Marble, Tile and Terrazzo Works, Charleston, S. C., in acknowledging receipt of an extra copy of our January 1 issue, requested because of a delay in receiving the original copy, writes:

"As in the case of many of your other subscribers, we feel that any of the issues are too valuable to miss and this is why we notified you immediately when the January 1 issue failed to reach us in time."

Marble, Granite and Stone

The Bureau of the Census announces that the total value of marble, granite, slate and other stone products shipped or delivered in 1929 by establishments in the United States engaged primarily in the production of these commodities amounted to \$183,975,663, a decrease of 7.2 per cent from 1927, the last preceding census year. The total for 1929 is made up as follows: Building stones, valued at \$111,421,010; monumental stones, \$59,-

057,030; stones for ornamental and miscellaneous uses, \$11,959,028; stone not reported in detail, \$1,538,595.

The census does not cover the numerous small yards which are engaged in the purchase and sale of finished or partly finished monuments and tombstones, but which do no work on them except lettering and finishing to individual order. The manufacture of grindstones, pulpstones, hones and whetstones is not included in this industry.

SUMMARY FOR THE INDUSTRY: 1929 AND 1927

	1929	1927
Number of establishments.....	1,820	1,978
Wage earners (average for the year).....	36,153	40,474
Wages	\$60,951,660	\$68,490,655
Cost of materials, fuel and purchased electric current..	\$55,231,093	\$66,328,248
Products, total value.....	\$185,667,388	\$201,181,281
Marble, granite, slate and other stone products.....	\$183,975,663	\$198,348,394
Other products, value and receipts for contract and custom work	\$1,691,725	\$2,832,887
Value added by manufacture.....	\$130,436,295	\$134,853,033

Georgia Central Industries

Excellent progress in industrial development along its lines in 1930 is reported by the Central of Georgia Railway, which long has been active in the up-building and development of its territory. One hundred and twenty-eight new industries were established in the year and 65 existing industries were expanded, making an average of one new industry or enlargement for each 10 miles of road. The plants included: Textile, 14; woodworking, 40; feed and flour mills, 7; beverage and bottling, 3; ice and cold storage, 8; dairies and creameries, 5; turpentine distilleries, 4;

ore mines and sand pits, 7; bulk oil distributing stations, 17; foundries, 9; iron fabricating, 11; miscellaneous, 68. The 193 industries opened employment opportunity to 4153 persons.

Push Reforestation Project

Augusta, Ga.—Inaugurating the first reforestation project on a large scale in Richmond County, Scott Nixon of this city, has planted 7500 slash pine trees on a 10-acre tract on the new Savannah road. Planting was under the supervision of K. S. Trowbridge, extension forester of the Georgia State College of Agriculture.

\$1,500,000 Courthouse Bonds

Birmingham, Ala.—Acting under legislative authority, the Jefferson County Board of Revenue has called an election for March 10 on a bond issue of \$1,500,000 to complete the construction of the courthouse and jail now under construction here. Originally designed to cost about \$3,250,000 complete, the new building is more than half finished, with most of the unfinished work to be done on the interior. Holabird & Root, Chicago, are the architects and Harry B. Wheelock, Birmingham, associate architect. General contract is being handled by the Southern Ferro Concrete Co., Atlanta.

1884

Southern men and women who lived in, or visited Baltimore in the period when this Company was established—which was the year of 1884—will be interested, we believe, in our anniversary book "The Early Eighties: Sidelights on the Baltimore of forty years ago." A copy will be sent upon request.

MERCANTILE TRUST COMPANY OF BALTIMORE

Resources \$24,000,000 A. H. S. POST, Pres. F. G. BOYCE, Jr., Vice-Pres

HELPFULNESS

is the motto of this Bank.

Let us tell you about it.

BALTIMORE COMMERCIAL BANK

GWYNN CROWTHER, President

26 South Street, Baltimore, Md.

Capital and Surplus \$1,350,000.00 Member Federal Reserve System

JOHN NUVEEN & CO.

First National Bank Building

CHICAGO

We purchase SCHOOL, COUNTY and MUNICIPAL BONDS. Southern Municipal Bonds a Specialty.

Write us if you have bonds for sale.

THE growth and development of the South and Southwest demands extensive financing and banking facilities. If you are interested in enlarging your contacts in this section, may we discuss our advertising service with you?

MANUFACTURERS RECORD

We Buy Bonds

City, County, School and Road from Municipalities and Contractors
WRITE

THE PROVIDENT SAVINGS BANK & TRUST CO.
CINCINNATI OHIO

DELAWARE REGISTRATION TRUST CO.

Delaware Corporations
Forms, Law and Pointers

Estimates of Cost Furnished Without Cost

100 West Tenth Street
Wilmington, Del.

J. Ernest Smith, President and General Counsel,
Chas. Warner Smith, Vice-President,
Harry W. Davis, Secretary and Treasurer.

HAVE YOU BONDS FOR SALE?

WE BUY ALL CLASSES OF MUNICIPAL BONDS,
INCLUDING CITY, COUNTY, SCHOOL,
PAVING, ROAD AND DRAINAGE

The Hanchett Bond Co. Inc.
39 SOUTH LA SALLE ST., CHICAGO

Corporate Financing Arranged

Mergers and Reorganizations Effected
Capital furnished for both new and old enterprises

WILLIAM AKERS

Long Distance and Local Phone Walnut 3186

1314-15 Atlanta Trust Co. Bldg.

ATLANTA, GEORGIA

Manufacturers

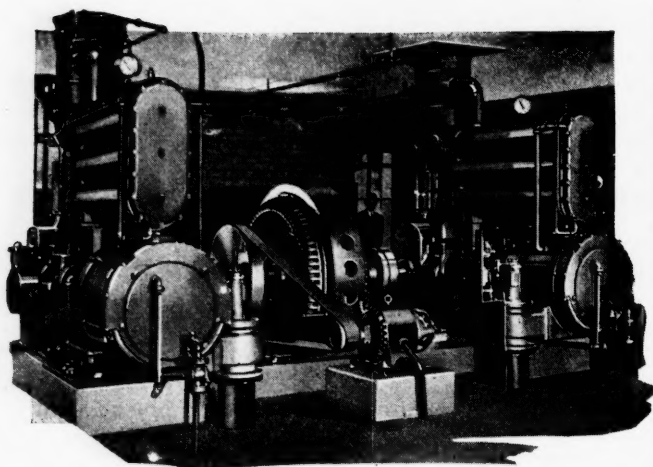
You are invited to utilize our industrial and engineering services on factory establishment or relocation. Complete reports on industrial advantages in areas served by our properties . . . All negotiations confidential and gratis. Address Industrial Development Department.

Associated Gas and Electric System

61 Broadway



New York City



SULLIVAN Twin Balanced Angle Compressor in a great steel mill. One direct-connected synchronous motor operates both compressors, or either compressor.

The Steel Industry Opens New Markets by Producing New Alloys Economically

Brighter auto bodies, whiter table knives, lighter railroad cars—these and hundreds of other outlets are opening to the new low-priced steel alloys.

With production the key to profits, leaders entrust air power to SULLIVAN

Every production process, and every machine which might reduce the cost of these alloys is under close scrutiny.

And Balanced Angle Compressors are now at work in the largest steel mills of the world.

Balanced Angle Compressors assure air power for less money—due to balanced design and multi-step control.

They will help you find the profits in production.

Booklet 83-X



SULLIVAN COMPRESSORS

60 TO 6000 CUBIC FEET A MINUTE

SULLIVAN MACHINERY COMPANY

718 Wrigley Bldg.,
Chicago

30 Church Street,
New York

**IF YOU HAVE
NEVER GIVEN
US A JOB**

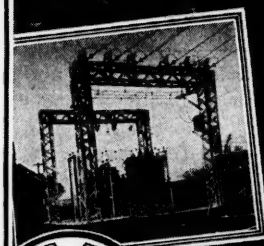
LET us show you how we strain every effort to give each customer more than his money's worth of service and expert workmanship.

Come to the **BESSEMER MARKET** for your next Galvanized Steel Structure!

**BESSEMER
GALVANIZING WORKS**

Offices: Phoenix Building
BIRMINGHAM, ALABAMA

Transmission Towers; Out Door Substations; Radio Towers; Look-out Towers; and all other Galvanized Steel Structures.



Bessemer Galvanizing Works
BIRMINGHAM, ALA.



Visitors from the south will enjoy their stay in Baltimore to the full in the cordial atmosphere prevailing here. A happy combination of delicious food, old-fashioned southern hospitality and modern conveniences make any length stay thoroughly pleasurable.

Rates \$3.00 per day and up. Every room with bath or shower. Centrally located.

The Southern Hotel
BALTIMORE

DAVIS-PARADIS WATCHMEN'S CLOCK CORP.

97 Nassau Street, New York, N. Y.

Insurance Underwriters do not recognize watchmen's service unless checked by approved clock.

Use our TELFAX Model Clock.

Ask for Quotations

**IF YOU WANT TO GET—
Southern Business
Advertise in the
MANUFACTURERS RECORD**



PROPOSALS

BOND ISSUES

BUILDINGS

PAVING

GOOD ROADS



Bids close February 18, 1931.

U. S. Engineer Office, Jacksonville, Fla.—Sealed bids, in duplicate, will be received here until 12 noon, February 18, 1931, and then opened, for furnishing all labor and materials and performing all work for repairing approximately eight miles of training walls and revetments, St. Johns River, Florida, between the entrance and Dames Point. Further information on application.

Bids close February 17, 1931.

TREASURY DEPARTMENT, office of the supervising architect, Washington, D. C., January 19, 1931.—SEALED BIDS, in duplicate, subject to the conditions contained herein, will be publicly opened in this office at 3 p. m., February 17, 1931, for furnishing all labor and materials and performing all work for the construction of the U. S. post office, etc., at Kissimmee, Fla. Drawings and specifications, not exceeding one set, may be obtained at this office, in the discretion of the supervising architect, by any satisfactory general contractor, and provided a deposit of \$15.00 is made to assure its prompt return. Checks offered as deposits must be made payable to the order of the Treasurer of the United States. JAS. A. WETMORE, Acting Supervising Architect.

Bids close February 26, 1931.

TREASURY DEPARTMENT, office of the supervising architect, Washington, D. C., January 24, 1931.—SEALED BIDS, in duplicate, subject to the conditions contained herein, will be publicly opened in this office at 3 p. m., February 26, 1931, for furnishing all labor and materials and performing all work for the construction of the U. S. post office, etc., at Madisonville, Ky. Drawings and specifications, not exceeding one set, may be obtained at this office, in the discretion of the supervising architect, by any satisfactory general contractor, and provided a deposit of \$15.00 is made to assure its prompt return. Checks offered as deposits must be made payable to the order of the Treasurer of the United States. JAS. A. WETMORE, Acting Supervising Architect.

Bids close February 24, 1931.

TREASURY DEPARTMENT, office of the supervising architect, Washington, D. C., January 20, 1931.—SEALED BIDS, in duplicate, subject to the conditions contained herein, will be publicly opened in this office at 3 p. m., February 24, 1931, for furnishing all labor and materials and performing all work for the construction (except elevator, etc.), of the U. S. post office, court house, etc., at Bartlesville, Okla. Drawings and specifications, not exceeding three sets, may be obtained at this office, in the discretion of the supervising architect, by any satisfactory general contractor, and provided a deposit of \$25.00 is made for each set to assure its prompt return. Checks offered as deposits must be made payable to the order of the Treasurer of the United States. JAS. A. WETMORE, Acting Supervising Architect.

Bids close March 3, 1931.

DEPARTMENT OF INTERIOR, Washington, Jan. 22, 1931. Sealed proposals in duplicate will be received at the Department until two o'clock P. M., Tuesday, March 3, 1931, for furnishing all labor and materials for installing complete at Saint Elizabeths Hospital, Washington, D. C., one turbo generator set and exciter, with all necessary pumps, condensers, piping, valves and instruments; one open type feed water heater, and one zeolite water softener, in accordance with specifications, copies of which may be obtained from the Superintendent, Saint Elizabeths Hospital, or the Chief Clerk of the Department. The right is reserved to reject any or all bids, waive technical defects, or to accept one part and reject the other as the interests of the Government may require. Proposals must be marked "Proposals for turbo generator set at Saint Elizabeths Hospital" and be addressed to the Secretary of the Interior, Washington, D. C. JOHN H. EDWARDS, Assistant Secretary.

GENERAL INFORMATION About Proposal Advertising in Manufacturers Record

PUBLICATION DAY: Thursday.
FORMS CLOSE: 10 A. M. Tuesday.

When too late to send copy by regular mail to reach us by 10 A. M. Tuesday, forward by night letter or air mail when possible.

THE DAILY CONSTRUCTION BULLETIN OF THE MANUFACTURERS RECORD

Published every business day, gives information about the industrial, commercial and financial activities of the South and Southwest.

The Daily Construction Bulletin can be used to advantage when copy cannot reach us in time for publication in the Manufacturers Record before bids are to be opened or when daily insertions are necessary to meet legal requirements.

The rate is the same for both publications—35 cents a line each insertion.

Bids close February 10, 1931.

U. S. Engineer Office, Wilmington, N. C. Sealed bids, in duplicate, will be received until 12 o'clock noon, February 10, 1931, and then publicly opened, for furnishing all labor and materials and performing all work for dredging a total of approximately 10,383,313 cubic yards in the Cape Fear River to Little River portion of the Intracoastal Waterway from Cape Fear River, N. C., to St. Johns River, Fla.

Bids close February 19, 1931.

U. S. Engineer Office, Jacksonville, Fla.—Sealed bids, in duplicate, will be received here until 12 noon, February 19, 1931, and then opened, for furnishing all labor and materials and performing all work for dredging approximately 951,000 cubic yards of material consisting of 838,000 cubic yards of material other than rock and 113,000 cubic yards of rock in the Biscayne Bay Section of the Intracoastal Waterway from Jacksonville to Miami, Florida. Further information on application.

Bids close February 26, 1931.

OFFICE OF THE ARCHITECT OF THE CAPITOL, Washington, D. C., January 30, 1931. SEALED BIDS will be opened in this office at 3 P. M., February 26, 1931, for excavation and foundations for the United States Supreme Court Building, to be built on Squares 727 and 728, Washington, D. C. On or after February 5, 1931, drawings and specifications, not exceeding two sets, may be obtained at the Office of the Architect of the Capitol, in the discretion of said Architect, by any satisfactory general contractor. A deposit of fifty dollars (\$50.00) will be required for each set of drawings and specifications, to insure their return in good condition. Checks therefor to be made payable to the order of David Lynn, Architect of the Capitol.

Bids close February 13, 1931.

TREASURY DEPARTMENT, office of the supervising architect, Washington, D. C., January 16, 1931.—SEALED BIDS in duplicate subject to the conditions contained herein will be publicly opened in this office at 3 p. m., February 13, 1931, for furnishing all labor and materials and performing all work for the construction of the U. S. post office, etc., at Edenton, N. C. Drawings and specifications, not exceeding one set, may be obtained at this office, in the discretion of the supervising architect, by any satisfactory general contractor, and provided a deposit of \$15.00 is made to assure its prompt return. Checks offered as deposits must be made payable to the order of the Treasurer of the United States. JAS. A. WETMORE, Acting Supervising Architect.

Bids close February 6, 1931.

Office of Public Buildings and Public Parks, Room 1031, Navy Building, Washington, D. C. Sealed bids will be received until 11 A. M., February 6, 1931, for the construction of an office building for the American Red Cross. This building will be approximately 228 by 62 feet, with five stories, attic and basement, and will be constructed of structural steel and reinforced concrete with marble exterior. All mechanical work is included. A deposit in the form of a certified check for \$100 will be required to secure plans. Further information upon application.

Bids close February 26, 1931.

TREASURY DEPARTMENT, office of the supervising architect, Washington, D. C., January 26, 1931.—SEALED PROPOSALS will be opened in this office at 3 p. m., February 26, 1931, for furnishing all labor and material required for new brass water piping and plumbing and heating changes in the U. S. post office at Florence, Ala. Drawings and specifications may be obtained from the custodian at the U. S. post office at Florence, Ala., or at this office, in the discretion of the supervising architect. JAS. A. WETMORE, Acting Supervising Architect.

Bids close February 26, 1931.

TREASURY DEPARTMENT, Office of the Supervising Architect, Washington, D. C., Jan. 29, 1931.—SEALED BIDS in duplicate subject to the conditions contained herein, will be publicly opened in this office at 3 p. m., Feb. 26, 1931, for furnishing all labor and material and performing all work for the remodeling and enlarging the U. S. post office at Cambridge, Md. Drawings and specifications, not exceeding one set may be obtained by any satisfactory general contractor at this office in the discretion of the supervising architect. JAS. A. WETMORE, Acting Supervising Architect.

Bids close March 4, 1931.

TREASURY DEPARTMENT, office of the supervising architect, Washington, D. C., January 28, 1931.—SEALED BIDS in duplicate, subject to the conditions contained herein, will be publicly opened in this office at 3 p. m., March 4, 1931, for furnishing all labor and materials and performing all work for the construction of the U. S. post office, etc., at Frederick, Okla. Drawings and specifications, not exceeding one set, may be obtained at this office, in the discretion of the supervising architect, by any satisfactory general contractor, and provided a deposit of \$15.00 is made for the set to assure its prompt return. Checks offered as deposits must be made payable to the order of the Treasurer of the United States. JAS. A. WETMORE, Acting Supervising Architect.

Bids close February 24, 1931.

TREASURY DEPARTMENT, office of the supervising architect, Washington, D. C., January 27, 1931.—SEALED PROPOSALS will be opened in this office at 3 p. m., February 24, 1931, for furnishing the materials and performing the work required for installing one passenger elevator in the U. S. p. o., ct. h., etc., at Bartlesville, Okla. All prospective bidders are hereby notified that, unless the following information has been furnished within the last year on some other project for the Treasury Department, any bid submitted in response to this advertisement must be accompanied by a statement of facts in detail of the business and technical organization of the bidder available for the contemplated work, including financial resources and building experience, etc. The United States expressly reserves the right to reject any bid in which the facts as to business and technical organization, financial resources or building experience compared with the project bid upon justify such rejection. The successful bidder will be required to furnish a performance bond of 50% of the contract price. Drawings and specifications may be obtained from this office. JAS. A. WETMORE, Acting Supervising Architect.

Bids close February 21, 1931.

SEALED BIDS, in triplicate, subject to the conditions contained herein, will be received by the U. S. Veterans Bureau, Room 764, Arlington Building, Washington, D. C., until 2.30 P. M., February 21, 1931, and then publicly opened, for furnishing all labor and materials and performing all work required for constructing and finishing complete at U. S. VETERANS HOSPITAL, WACO, TEXAS, BUILDINGS AND UTILITIES, including roads, walks, grading and drainage. This work will include excavating, reinforced concrete construction, hollow tile, brick work, cut stone, cast stone, architectural terra cotta, marble work, floor and wall tile, rubber tile, compressed asphalt tile and linoleum floors, terrazzo, iron work, flag pole, steel sash, steel stairs with slate treads, steel shelving, cabinets and partitions, tile, metal and built-up roofing, roof ventilators, lightning conductor, metal lathing, plastering, carpentry, platform scale, metal weatherstrips, insect screens, window shades, painting, glazing, hardware, plumbing, vacuum cleaning system, refrigerating and ice making plant, zeolite water softening system, boiler plant, radial brick chimney, heating and ventilating, electrical work, electric elevators, nurses call system, fire alarm system and outside sewer, water, gas, steam and electric distribution systems. **SEPARATE BIDS** will be received for (a) General Construction, including Radial Brick Chimney; (b) Plumbing, Heating, Electrical Work and outside distribution systems; (c) Electric Elevators; (d) Steel Water Tank and Tower; (e) Zeolite Water Softening System; (f) Refrigerating and Ice Making Plant; all as set forth on bid forms. Bids will be considered only from individuals, firms or corporations possessing satisfactory financial and technical ability, equipment and organization to insure speedy completion of the contract, and in making awards, the records of bidders for expedition and satisfactory performance on contracts of similar character and magnitude will be carefully considered. At the discretion of the Director, drawings and specifications may be obtained upon application to the Construction Division, Room 764, Arlington Building, Washington, D. C. Deposit with application of a check or postal money order for \$100.00, payable to the **TREASURER OF THE UNITED STATES**, is required as security for safe return of the drawings and specifications within ten days after date of opening bids. **GEORGE E. IJAMS**, Director, January 17, 1931.

Bids close February 25, 1931.

U. S. Department of Agriculture, Bureau of Public Roads, Washington, D. C., January 20, 1931. **SEALED BIDS**, subject to the conditions contained herein, will be received until eleven o'clock a. m., February 25, 1931, and then publicly opened, for furnishing all labor and materials and performing all work for Unit IV of the Mount Vernon Memorial Highway. Duplicate copies are not required. Unit IV begins on Columbia Island in the Potomac River at a point approximately 1300 feet south of the center line of the Arlington Memorial Bridge Plaza and extends to the entrance gates of Mount Vernon, being located partly in the District of Columbia, partly in Alexandria, Virginia, and partly in Arlington and Fairfax counties, Virginia. Unit IV is approximately 15.361 miles long and consists of paving the highway and incidental construction as scheduled herein-after. The work to be done under this unit has been divided into two sections. Separate bids will be received for the work embraced in either section. Bidders, if they so desire, may submit bids both for the work divided into sections and for the work as a whole, in which event the amount of the guarantee required with the bid will be not less than 20 per cent of the larger total for the unit. The right is reserved to let the work as a single contract or to award separate contracts for the work embraced in each section, as may appear to the best interest of the Government. The bids will be opened in the office of the Chief, Bureau of Public Roads, U. S. Department of Agriculture. Information for bidders, together with forms and questionnaires, may be obtained in the office of the Bureau of Public Roads, Willard Building, Washington, D. C. Each bidder must submit with his bid, or previously, an attested statement, on the prescribed forms, of the business and technical organization of the

bidder, available for the contemplated work, including financial resources and highway construction experience, compared with the project bid upon. The United States expressly reserves the right to reject any bid in which the facts as to business and technical organization, financial resources, or construction experiences, compared with the project bid upon, justify such rejection. Bidders must submit with their bids a plan and equipment questionnaire showing in complete detail the proposed manner of handling the contract, the organization of forces, the equipment and equipment layout, camp set-ups and other pertinent information. **SECTION 1** of Unit IV consists of paving the highway from the beginning on Columbia Island to Station 404, a distance of approximately 7.567 miles, together with the incidental construction required. Station 404 is approximately at the south end of the Hydraulic Fill over Hunting Creek south of Alexandria. The approximate quantities of each item of work for Section 1 are as follows: 1, 125,560.0 cu. yds. unclassified excavation; 2, 3,886.0 cu. yds. unclassified excavation for structures; 3, 19,200.0 cu. yds. unclassified excavation for borrow; 4, 80,000.0 sta. yds. over-haul; 5, 17,500.0 cu. yds. gravel sub-base course; 6, 93,210.0 sq. yds. clay bound gravel base course; 7, 26,700.0 sq. yds. dry chokel stone base course; 8, 100,840.0 sq. yds. bituminous concrete base course; 9, 75,330.0 sq. yds. reinforced concrete base course; 10, 49,550.0 sq. yds. plain concrete base course; 11, 178,390.0 sq. yds. bituminous concrete surface course; 12, 49,550.0 sq. yds. sheet asphalt pavement; 13, 38.0 cu. yds. class A concrete; 14, 320.0 lbs. reinforcing steel; 15, 6.6 cu. yds. cement rubble masonry; 16, 5.0 cu. yds. dry rubble masonry; 17, 2.1 cu. yds. brick masonry; 18, 3,091.0 lin. ft. culvert pipe, 8-inch diameter; 19, 1,045.0 lin. ft. culvert pipe, 12-inch diameter; 20, 506.0 lin. ft. culvert pipe, 18-inch diameter; 21, 790.0 sq. yds. vitrified block gutter; 22, 19,550.0 lin. ft. concrete curb, 20-inch depth; 23, 1,480.0 lin. ft. concrete curb, 18-inch depth; 24, 23,710.0 lin. ft. concrete curb, 15-inch depth; 25, 8,150.0 lin. ft. concrete curb, 12-inch depth; 26, 3,950.0 lin. ft. combination curb and gutter; 27, 3 each manholes; 28, 10 each cast iron frames and gratings, type A; 29, 62 each cast iron frames and gratings, type B; 30, 4 each cast iron frames and gratings, type C; 31, 31,000.0 lin. ft. low guard rail; 32, 3,920.0 lin. ft. high guard rail; 33, 40 each adjusting street structures; **ALTERNATE BID FOR ITEM 13**; 41, 178,390.0 sq. yds. cold laid bituminous concrete pavement, or 42, 178,390.0 sq. yds. sandrock asphalt pavement; **ALTERNATE BID FOR ITEMS 14 AND 25**; 43, 50,340.0 sq. yds. vitrified brick pavement. The above tabulation for Section 1 includes 8-inch, 12-inch and 18-inch culvert pipe. For these items bids will be received on either Concrete Pipe or Vitrified Clay Pipe or on both. **SECTION 2** consists of paving the highway from the end of Section 1 to the end of the highway as described above, a distance of approximately 7.794 miles, together with the incidental construction required. The approximate quantities of each item of work for Section 2 are as follows: 1, 25,000.0 cu. yds. unclassified excavation; 2, 914.0 cu. yds. unclassified excavation for structures; 3, 7,550.0 sq. yds. clay bound gravel base course; 4, 26,000.0 sq. yds. gravel base course; 5, 32,760.0 sq. yds. bituminous macadam surface course; 6, 203,500.0 sq. yds. reinforced concrete pavement; 7, 16,32.0 cu. yds. class A concrete; 8, 440.0 lbs. reinforcing steel; 9, 4.7 cu. yds. cement rubble masonry; 10, 10.0 cu. yds. dry rubble masonry; 11, 5.0 cu. yds. brick masonry; 12, 600.0 lin. ft. culvert pipe, 8-inch diameter; 13, 420.0 lin. ft. culvert pipe, 12-inch diameter; 14, 158.0 lin. ft. culvert pipe, 18-inch diameter; 15, 100.0 sq. yds. grouted rubble gutter; 16, 2,870.0 lin. ft. concrete curb, 20-inch depth; 17, 737.0 lin. ft. concrete curb, 16-inch depth; 18, 76,840.0 lin. ft. concrete curb, 13-inch depth; 19, 360.0 sq. yds. brick walks; 20, 11 each cast iron frames and gratings, type A; 21, 36, 57 each cast iron frames and gratings, type B; 22, 20,900.0 lin. ft. low guard rail; 23, 9,960.0 lin. ft. high guard rail. The above tabulation for Section 2 includes 8-inch, 12-inch and 18-inch culvert pipe. For these items bids will be received on either Concrete Pipe or Vitrified Clay Pipe or on both. **ENTIRE WORK.** The approximate quantities for the entire work are the summation of the items and quantities contained in the tabulations for Sections 1 and 2. Where copies of plans are furnished bidders, a deposit of \$30.00 will be required to insure their return. All checks should be made payable to A. Zappone, Disbursing Clerk, U. S. Department of Agriculture. If within 15 days after opening bids plans are not returned, the deposit will be forfeited to the Government. Guarantee will be re-

quired with each bid as follows: In the sum of not less than 20 per cent of the total amount bid for the work. If certified check is furnished it should be made payable to A. Zappone, Disbursing Clerk, U. S. Department of Agriculture. Performance bond will be required as follows: In the sum of 100 per cent of the total amount bid for the work awarded. Performance must begin within 15 calendar days after date of receipt of notice to proceed and must be completed within 320 calendar days from that date. Liquidated damages for delay will be as follows: For Section 1 the amount of \$150 for each calendar day of delay until the work is completed and accepted. For Section 2 the amount of \$150 for each calendar day of delay until the work is completed and accepted. For the entire work the amount of \$300 for each calendar day of delay until the work is completed and accepted. Partial payments will be made as stipulated in the specifications. Article on patents will be made a part of the contract, but attention is invited to Special Provision Number (16). Bids must be submitted upon the Standard Government Form of Bid and the successful bidder will be required to execute the Standard Government Form of Contract for Construction. The right is reserved, as the interest of the Government may require, to reject any and all bids, to waive any informality in bids received, and to accept or reject any items of any bid, unless such bid is qualified by specific limitation. Envelopes containing bids must be sealed, marked and addressed as follows: "Bid for — Unit IV, Mount Vernon Memorial Highway, Bureau of Public Roads, U. S. Department of Agriculture, Washington, D. C. To be opened at 11:00 a.m., February 25, 1931. Submitted by

(Name of Contractor.)

THOS. H. MacDONALD, Chief of Bureau.

Bids close February 10, 1931.

Maryland Highway Work

STATE OF MARYLAND
STATE ROADS COMMISSION

NOTICE TO CONTRACTORS

Baltimore, Md.

SEALED PROPOSALS for building three sections of State Highway as follows:

Carroll and Frederick Counties, Contract No. C1-89-54 F-156-54—Federal Aid Project No. 156E—One section of State Highway along the Liberty Road from Taylorsville toward Unionville, a distance of 3.71 miles, and from Unionville to Libertytown, a distance of 2.69 miles, making a total distance of 6.4 miles (concrete)

Dorchester County, Contract No. D-69-14—Federal Aid Project No. 222—One section of State Highway along the Finchville-Reliance Road from the end of Contract No. D-57 to the Delaware Line, a distance of 1.91 miles (concrete)

Wicomico County, Contract No. W1-64-14—Federal Aid Project No. 228—One section of State Highway along the Catchpenny-Whitehaven Road from the end of Cont. No. W1-44 toward Whitehaven, a distance of 2.93 miles (concrete)

will be received by the State Roads Commission at its offices, Federal Reserve Bank Building, Calvert and Lexington Streets, Baltimore, Maryland, until 12 M. on the 10th day of February, 1931, at which time and place they will be publicly opened and read.

Bids must be made upon the blank proposal forms which, with specifications and plans, will be furnished by the Commission upon application and cash payment of \$1.00, as hereafter no charges will be permitted.

No bids will be received unless accompanied by a certified check for the sum of Five Hundred (\$500) Dollars, payable to the State Roads Commission.

The successful bidder will be required to give bond and comply with the Acts of the General Assembly of Maryland respecting contracts.

The Commission reserves the right to reject any and all bids.

BY ORDER of the State Roads Commission this 27th day of January, 1931.

G. CLINTON UHL, Chairman.

L. H. STEUART, Secretary.

CLASSIFIED OPPORTUNITIES

MINERAL AND TIMBER LANDS, WATER POWER, MISCELLANEOUS PROPERTIES

PHOSPHATE ROCK PROPERTY
PHOSPHATE ROCK PROPERTY in Tennessee For Sale—1500 acres containing approximately 3,000,000 tons brown rock and 3,000,000 tons blue rock; also plant complete for mining, washing, drying and grinding rock; 4000 tons storage shed; plenty water for washing rock. N. & C. & St. Louis R. R. siding. Sold cheap. Care FRED. G. BUSHOLD, Cregg Bldg., Lawrence, Mass.

TIMBER OPERATION
FOR SALE—Complete Saw Mill with Planing Mill, Dry Kiln, and all necessary equipment, well located in South Carolina, with an abundant timber supply behind it. Capacity 30,000 ft. per day. Can be bought at a reasonable price. Address P. O. Box 1426, Norfolk, Va.

TIMBER AND TIMBER LANDS
ACREAGE BARGAINS—We have several desirable tracts; some are well stocked with fast growing pine timber. Many have enough advance growth to pay a good return on the investment above carrying charges during the holding period. Let us select the tract and manage it, taking our remuneration as a percentage of net earnings.
THE JAMES D. LACEY COMPANY,
 1409 Barnett Bldg., Jacksonville, Fla.

FARM, FRUIT AND TRUCK LANDS

OKLAHOMA
FOR SALE—27½ acres Rio Grande Valley irrigated land, all cultivated, 3 miles of Harlingen, on road next to be paved. Write DOLLINS & ROEX, Owners, Henryetta, Okla.

TEXAS
LOWER RIO GRANDE Valley orchards and acreage at actual value. Owner's price direct to you. Send for list. **ROBERTS REALTY CO.,** Realtors, McAllen, Tex.

LOWER RIO GRANDE VALLEY, large and small tracts of choice citrus or truck land, on or near paved roads, lowest prices; terms. Box 1088, San Benito, Texas.

FARMS—2000-acre improved with tenant houses, outbuildings; levee protected; pumping plant; benefit tax paid; gravel road; 6 miles out; easily financed.
Plowman & Greenville, Hannibal, Mo.

MEXICAN INVESTMENTS

MEXICO. Reports made on investments and prospective investments for Banks, Industrial Plants, Mines and Utilities. W. R. Pender Eng. Service Corp., Post Dispatch Bldg., Houston, Texas.

BUSINESS OPPORTUNITIES

LONG TERM LOANS, large amounts, made on industrial, mercantile, sawmill properties. **THOS. W. GILMER,** Attorney, Bay Minette, Alabama.

PARTY WILL CONSIDER constructing, financing or purchase of water works systems. Address No. 9085, care Manufacturers Record, Baltimore, Md.

FOR SALE—Concern going out of business has 19,000 pairs Men's Pants for sale. Cost \$25,000.00. Good sizes and patterns. 140 East Washington St., Petersburg, Va.

MANUFACTURERS—Write for our FREE Classification Sheets of inventions for sale, covering 135 main subjects, and in one or more of which you will doubtless be interested. **ADAM FISHER MFG. CO.,** 578 Enright, St. Louis, Mo.

SPLendid LOCATION and opening for dairy and stock farm. Party ready and willing, waiting to go in with proper party or will turn over to interested party.

P. JOHN HART REALTY CORP.,
 P. O. Arcade,
 Fort Myers, Fla.

Rates, Terms and Conditions

RATES: 30 cents a line each insertion. Minimum space accepted, four lines. In estimating the cost allow six or seven words of ordinary length to line. When the advertisement contains a number of long words proper allowance should be made.

Rates for Special Contract:
 100 lines 28c a line
 300 lines 26c a line
 500 lines or more 25c a line

TERMS: For transient advertising cash with order; check, postoffice or express money order or stamps accepted.

On special contract advertising bills are rendered monthly, covering space used each month, payable within ten days.

CONDITIONS: No patent medicine, oil or mining stock advertisements or questionable or undesirable advertisements will be accepted. The assistance of our readers in excluding undesirable advertisements is requested. No display type used.

BUSINESS OPPORTUNITIES

FOR SALE, REASONABLE—Telephone business in good section of North Carolina on paved highway. If interested address No. 9064, care Manufacturers Record.

SALVAGE

ANYTHING FROM A SUNKEN BOAT to a waste pile, antiquated stock or non-operating plant. If you own property that needs salvaging, write describing it to No. 9083, care of Manufacturers Record.

GAS PRODUCERS-INCINERATORS

MAKE GAS at a cost defying all competition. Size No. 7½, price \$130. Little attention required. A size with a capacity to meet your requirements. Also incinerators, prices on request. Representatives wanted.
THE GAS-O-FLAME STOVE WORKS,
 Burlington, N. J.

RESEARCH, REPORTS, ETC.

DEPARTMENTAL, Statistical, Information-Research-Reports; Legislative, Treasury, Internal Revenue, Consular, Local and Foreign Markets, Labor. Federal Economics Service, 357 Munsey Bldg., Washington, D. C.

INDUSTRIAL SURVEYS

ENGINEERING REPORTS on resources of cities and towns. Recommendations for industrial development and zoning made by specialists in locating industries.

TECHNICAL SERVICE CO.,
 Woolworth Building New York City

INDUSTRIES WANTED

WELL-LOCATED Southern town wants industry. Will furnish plant, moving expenses, additional capital and other concessions.

INDUSTRIAL SERVICE CORP.,
 Asheville, N. C.

FACTORY SITES

TWO AND ONE-QUARTER MILES railroad frontage industrial sites for sale at Baton Rouge. Southern Land and Investment Company, Baton Rouge, La.

66-ACRE Manufacturing Site available for \$50.00 per acre. Power, labor, water, raw material plentiful. Trackage available at minimum cost. No grading required for plant site. 5-year tax exemption. Move your plant here and reduce your operating expense. **CHAS. E. NEWELL,** Box 305, Signal Mountain, Tenn.

PATENT FOR SALE

PATENT
 No. 1,476,644, all metal scaffolding bracket, for sale outright or on royalty basis. Late model. **Edson B. Rex,** 3901 Russell Ave., Brooklyn Sta., Cleveland, Ohio.

PATENT ATTORNEYS

FREE "PATENT PARTICULARS"
Sterling Buck, over 23 years Registered Patent Attorney. Prompt and thorough services. Suite M 629 F, Washington, D. C.

PATENTS—Booklet free. Highest references. Best results. Promptness assured. **WATSON E. COLEMAN,** Patent Lawyer, 724 Ninth St., N. W., Washington, D. C.

SEYMOUR & BRIGHT, Registered Patent Attorneys. Established 1876. **PATENTS, TRADEMARKS, COPYRIGHTS.** Prompt and thorough service. Suite 600-4, Barrister Building, Washington, D. C.

PATENTS--TRADEMARKS--COPYRIGHTS
 Charlotte office convenient to South. **PAUL B. EATON,** Registered Patent Attorney, 218 Johnston Building, Charlotte, N. C., and 314 McLachlen Building, Washington, D. C.

REPRESENTATIVES WANTED

WE MAKE Water Conditioning Chemicals and desire to communicate with men now active, calling on the power trade or handling boiler room specialties. Work is highly remunerative. Address No. 9080, care of Manufacturers Record, Baltimore.

AGENCIES WANTED

WANTED—A good advertised line of paint on consignment. Can furnish references and rated in Duns. **FLORIDA GLASS COMPANY, INC.,** Lakeland, Florida.

SITUATIONS WANTED

CONSTRUCTION ENGINEER
 seeks engagement. Industrial or real estate development. Thoroughly experienced in costs, subcontracts and construction of hotels, residential and industrial buildings and work incidental thereto. Well recommended and satisfaction guaranteed. Contract or salary. Address No. 9084, care of Manufacturers Record, Baltimore, Md.

MEN WANTED

WANTED—Experienced miscellaneous and ornamental iron manager, familiar with estimating, sales, shop work and erection. P. O. Box 883, Roanoke, Va.

IF YOU ARE OPEN to overtures for new connection and qualified for a salary between \$2500 and \$25,000, your response to this announcement is invited. The undersigned provides a thoroughly organized service of recognized standards and reputation, through which preliminaries are negotiated confidentially for positions of the caliber indicated. The procedure is individualized to each client's personal requirements, your identity covered and present position protected. Established twenty-one years. Send only name and address for details.

R. W. BIXBY, INC.,
 103 Downtown Bldg. Buffalo, New York

MACHINERY AND SUPPLIES

FOR SALE—600 Prs. Handy Rail Clamps for 16 to 30 lbs. rails. 50c pair, any size. **PERSINGER SUPPLY CO.,**
 Williamson, W. Va.

ELECTRICAL MACHINERY
 For Sale—Motors and Generators, A.C. and D.C. New and Rebuilt. Attractive prices. Large Stock. Write for our Price List. **V. M. NUSSBAUM & CO.,**
 Fort Wayne, Ind.

RESALE DEPARTMENT

MACHINERY EQUIPMENT SUPPLIES

GENERATOR

200 KVA, 220 volt, 3 phase, 60 cycle, Burke generator direct connected to Filer-Stowell Uniflow engine.

AIR COMPRESSOR

676 cubic feet capacity Ingersoll-Rand Imperial type 10xOB, size 15" and 9 1/4" x 12", 2 stage air compressor, short belt idler drive with 100 H.P. synchronous motor.

METAL WORKING TOOLS

No. 4 36" Hilles & Jones punch, belt dr., cap. 1 3/4" x 1".

No. 3 24" Southwark punch, mtr. dr., cap. 3/4" x 3/4" Niles plate splitting shear, mtr. dr., cap. 1" plate.

48" x 16" Lodge & Shipley geared head, motor drive.

38" x 60" x 32" McCabe 2 in 1 lathe, belt dr., taper attach.

2000 lb. Chambersburg double frame steam hammer.

4' Cincinnati Bickford radial drill, gear box.

Brown & Sharpe & Gridley automatics, motor drive.

THE O'BRIEN MACHINERY CO.

113 North Third Street

Philadelphia, Pa.

IF IT'S NEW PIPE OR SECOND HAND

black or galvanized up to 12"—we have it. Cut and threaded to any length. **SPECIAL:** a carload of 3" or 4". Cheap at any time, rethreaded and coupled.

Your inquiry means—Another satisfied customer.

HUDSON PIPE AND SUPPLY COMPANY

34th Street and C. R. R. of N. J. Bayonne, N. J.

WANTED

Used Draw Bridge Swing Span

125 ft. with 20-ft. roadway, H-10 loading complete with hand operating machinery. Must be in first class condition. Quote giving complete description, plans, and specifications.

ROYCE KERSHAW, INC.

308 Meaher Building,

Mobile, Alabama.

—TRANSFORMERS—

SALES AND REPAIR SERVICE

TWO COMPLETE 66 and 33 Kv. SUBSTATIONS

Full description and price on request.

A complete stock of transformers 1 to 1000 kva. Modern methods make our repair service second to none. Special service on breakdown jobs.

All transformers guaranteed for one year.

Write for Catalog. No. 124-E.

The Electric Service Company, Inc.

"America's Used Transformer Clearing House"

212 Walnut St., Cincinnati, Ohio

WANTED

2 Diesel Engines, preferably 1—75 H.P. and 1—125 H.P. Also, 60 Cycle, 220 Volt, 3 Phase Generators for same, and switchboard equipment. Must be late type in good condition. Also, 1—10,000 gallon storage tank. In quoting state lowest cash price, manufacturers name and shop number, and present condition.

GATE CITY SASH AND DOOR CO.
Fort Lauderdale Florida

WANTED—Buy for cash;

4 miles twenty-four gauge Industrial Track, 100 forty-eight cubic foot batch boxes, 50 batch cars. Must be first class condition.

ALAMO IRON WORKS

San Antonio, Texas.

BOILERS AT \$2.00 PER H. P.

Butt Strap, High Pressure, H. R. T. Boilers.

6—150 H.P. 150 lbs. steam pressure, Atlanta, Ga.

3—150 H.P. 150 lbs. steam pressure, Augusta, Ga.

3—150 H.P. 150 lbs. steam pressure, Nashville, Tenn.

6—150 H.P. 140 lbs. steam pressure, Elver Falls, Ala.

6—150 H.P. 130 lbs. steam pressure, Lake, Miss.

3—Springfield water tube boilers, 242 H.P. each, 175 lbs. steam pressure, Nashville, Tenn.

These boilers must be moved immediately. We guarantee insurance at above pressure. Write or wire for details.

W. M. SMITH & CO.

Box 1709 Birmingham, Ala.

OIL ENGINE GENERATING SET FOR SALE

1—120 HP Twin Cylinder Giant Crude Oil Engine, direct connected to 2300 volt A.C. Allis-Chalmers Generator. The above outfit is in excellent condition. Price \$3750.00 F.O.B. Cars Raleigh, N. C. Write:

DILLON SUPPLY CO.

Raleigh

North Carolina

Power Bulletin 415

Showing hundreds of Rare Bargains in Oil Engine, Steam & Electric Power Equipment Now ready. You should have it; it's free for the asking.

ZELNICKER IN ST. LOUIS

Rails, Contractors' Equipment, Machinery, Steel Piling, Tanks, Pipe, etc.

Slackline Excavator

1 1/2 cu. yd. Beaumont Slackline Excavator complete with Steel Mast and 100 H.P. Electric Hoist.

Erie Economy Boiler

150 H.P. 150 lb. working pressure, A.S.M.E. and Stamped National Board, now in Vincennes, Indiana.

R. H. BEAUMONT CO.

319 Arch St., Philadelphia, Pa.

HYATT ROLLER BEARINGS FOR SALE

1—Lot of 800 New Hyatt Roller Bearings, inside diameter 2 1/2" and 3", length 7", for mining cars, shafting, etc. Priced at \$1.00 each, worth five times as much. F. O. B. Anniston, Ala.

ANNISTON SCRAP MATERIAL CO.

P. O. Box 33 Anniston, Ala.

EQUIPMENT FOR SALE

Nordberg-Carels Diesel Engine—No. 30173. Type 3VE. 330 B.H.P. Speed 225. 3 Cylinder. General Electric A.C. Generator—No. 2540617. Type ATL. Amps. 675. Speed 225. P.F. .8. Kw. 225. 60 Cycles. 281 kv-a. 240 volts.

NEW ICE COMPANY

244 Boone Street Orlando, Florida

MONEY

IN THE

BANK

Unused and unneeded Machinery and Supplies can be turned into Money in the Bank by advertising.

Use the

Resale Department
of the
Manufacturers Record

Rates on Request



RESALE DEPARTMENT

MACHINERY

EQUIPMENT

SUPPLIES



PIPE FOR EVERY PURPOSE

JOS. GREENSPON'S SONS
IRON AND STEEL COMPANY
ST. LOUIS, MO. - TULSA, OKLA. - NEW YORK CITY

IRON AND STEEL PIPE

Large quantity new and used Govern-
ment material in excellent condition, ready
for immediate shipment. Low prices.

CENTRAL PIPE & SUPPLY CO.
Box 1099 Charleston, W. Va.

PIPE

Rethreaded, reconditioned, guaran-
teed, suitable for all practical pur-
poses, furnished with new threads and
couplings, 400,000 feet in all sizes
from 24" to 1/2".

Also large stock of spiral pipe, sizes
7", 10", 12", 14", 20", and 24".
Large stock of valves and fittings.
screwed and flanged. Can make at-
tractive prices.

MARINE METAL & SUPPLY CO.
167 South St., New York City

PIPE NEW SECOND HAND

Overhauled and Tested
New Threads and Couplings
Established 1904

Albert & Davidson
Pipe Corp.

Second Ave., 50th-51st St., Brooklyn, N. Y.
Telephone Sunset 1900

SATISFACTION

ALBERT PIPE SUPPLY CO., INC.

NEW-RECLAIMED-USED

PIPE

ALL SIZES CUT TO SKETCH
AND STOCKED

BERRY & NORTH 13th STS.
BROOKLYN, N.Y.

GUARANTEED

SERVICE PRICES

Second Hand and New Wrought Steel PIPE Overhauled New Threads and Couplings
Also Cut to Sketch

Greenpoint Iron & Pipe Co., Inc.
187-205 Maspeth Ave. Brooklyn, N. Y.

Just Received
100,000 FEET 1-INCH
USED BLACK PIPE
IN 20-FOOT LENGTHS
Good Threads and Couplings; first-
class condition

MARYLAND PIPE AND STEEL CO.,
Scott and Ostend Sts., Baltimore, Md.

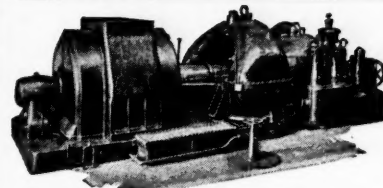
Machine Tools
Power Equipment Boilers
Electric Motors

DELTA EQUIPMENT CO.
148 N. 3rd St. PHILADELPHIA

WANTED

1-50 to 75 KW Turbo or Engine Generator
Set—480 volts, 3 phase 60 cycle to operate
on 150 lb. steam and stand back pressure of
about 10 lb. gauge.
Also switch board panel for same.
Communicate with

W. W. PARTEE, Purchasing Agent
E. L. BRUCE COMPANY, Memphis, Tennessee



10,000 KVA Turbo typical of 4 units recently
delivered and similar to the following.

PRACTICALLY NEW 100% INTERNAL EX-
CELLENCE WESTINGHOUSE CONDENSING
TURBO UNITS COMPLETE—INSTANT SHIP-
MENT

1-15,000 KW CW-218 Frame—1800 RPM
1-10,000 KVA CW-118 Frame—1800 RPM
1-7,500 KW CW-78 Frame—1800 RPM
1-5,500 KVA CW-76 Frame—3600 RPM
1-4,000 KVA CW-76 Frame—3600 RPM
2-1,700 KVA CW-26 Frame—3600 RPM
1-1,500 KVA CW-16 Frame—3600 RPM
(3 phase, 60 cycle, standard voltages)

A.S.M.E. CODE DESIGN BOILERS 200-225 lbs.

2-1500 H.P. Cross Drum B & W
2-2850 HP Ladd Bent Tube
5- 627 HP Stirling Plant, modern stokers,
auxiliaries
8- 504 HP B & W Vertical Steel headers, et al.

CONDENSERS MOTOR GENERATOR SETS

Verification and proof of new equivalent condi-
tion easily reached on personal inspection
50% to 200% saving on investment

Send us list of your requirements—or what you
have for sale

COME TO CINCINNATI



GREGORY ELECTRIC MOTORS

at—

Rock Bottom Prices

Tremendous Stock
Your choice all
Standard Makes.
All Gregory Hi-Grade—
Rebuilt—good as new

Send for 80-page Bargain Sheet

GREGORY ELECTRIC CO.
1601 So. Lincoln St., Chicago



RAILROAD AND CONTRACTORS' EQUIPMENT



Let us help you sell your machinery

You may replace certain machinery in
your plant this year. Let us help you
sell the equipment you will no longer
need by advertising it in

THE RESALE DEPARTMENT
Manufacturers Record Baltimore, Md.

FOR SALE OR LEASE

We have always on hand for sale or lease, Jordan
spreaders, sixteen and twenty yard all-steel air dump cars,
Model-75, Lorain gasoline shovel ready for immediate de-
livery in first class condition.

W. VA. CONSTRUCTION COMPANY
First Huntington National Bk. Bldg., Huntington, W. Va.



RAILROAD AND CONTRACTORS' EQUIPMENT



For Bigger Profits In 1931!

Use an E. E. D. Rebuilt Excavator

—BUY or RENT WITH OPTION TO PURCHASE—

P&H Model 400 Dragline, $\frac{3}{4}$ yard, in good shape, ready to go. Located at Chicago plant.

Northwest Model 105 1 yard Crane. Fully reconditioned. At Hoboken plant.

P&H Model 600 1 yard Shovel. Thoroughly overhauled and in very good operating condition. At Hoboken plant.

Marion No. 32 1 Yard Steam Shovel on full crawlers. Ready for immediate delivery. An exceptional bargain, located at Hoboken plant.

P&H Model 400 $\frac{3}{4}$ yard Clamshell, 35 foot boom. Has been very carefully reconditioned. At Hoboken plant.

Erie Gas-Air—1 yard Shovel or Crane. In good working order. Will sell cheap. At Chicago plant.

Liberal Terms—Large Stock to Pick From—Write or Wire At Our Expense

EXCAVATING EQUIPMENT DEALERS, INC.

Hoboken, N. J., Los Angeles, Cal., Berkeley, Cal., West Allis, Wis., Chicago, Ill.,
1706 Willow Ave. 2248 E. 37th St. 2657 Ninth St. 5905 Greenfield Ave. 1040 W. Division St.



GASOLINE LOCOMOTIVES FOR SALE—At Half Price

Three new 8 ton Whitcomb gasoline locomotives, narrow gauge, can be changed to standard gauge. These locomotives are new, unused and are in absolutely perfect condition.

W. M. SMITH & CO.
Birmingham, Alabama

DRAW BRIDGE FOR SALE CHEAP

Superstructure and machinery for a 238 ft. complete Highway Swing Span for sale at Bargain Price. Weight 220,000 lbs., 20 foot roadway, strong enough for logging train. Condition perfect, location Southeast.

WANNAMAKER & WELLS, INC.
Orangeburg, S. C.

RELAYING RAILS — SWITCHES TRACK MATERIAL

THE PERRY BUXTON DOANE CO.

P. O. Box 5253

Boston, Mass.

50 TONS 100 LB. RELAYING RAILS

150 TONS 80 LB. RELAYING RAILS

HENRY LEVIS & COMPANY
Commercial Trust Bldg. Philadelphia

RAILS NEW & RELAYING ALL WEIGHTS

Let us know your needs. We may have material in stock near you.

WE BUY RAILS FIT TO RE-LAY
ROBINSON & ORR

Columbia Bldg., 248 Fourth Ave., Pittsburgh, Pa.
New Frogs and Switches at low prices.

STEEL SHEET PILING

New and Used

SOLD, BOUGHT, REPURCHASED

Stocks at Principal Points throughout the Country for prompt shipment. We buy Piling located anywhere.

HYMAN-MICHAELS COMPANY

St. Louis CHICAGO New York
Houston San Francisco Seattle

Write for BIG Bargain List

Cutting and Welding Torches, Welding Generators, Paint and Lacquer Spray Guns, Portable Carbide Lights and Oil Burners.

For Sale at $\frac{1}{2}$ Usual Prices

Unused exhibition equipment—also trade-in and reconditioned apparatus. Equal to new.

The
ALEXANDER MILBURN CO.

Established 1907
1416-1428 W. Baltimore St., Baltimore, Md.

27E LEACH PAVER FOR SALE

Used Less Than 30 Days
Perfect Condition—Special Price

MOORE-HANDLEY HARDWARE CO.
5-20th Street Birmingham, Ala.

Your ADVERTISEMENT

in these pages places your facilities before the leaders in manufacturing and industrial operations in the South and Southwest, creating wider markets for your products.

Advertising rates gladly submitted upon request

MANUFACTURERS RECORD
Baltimore Maryland

Shovels or Cranes

FOR SALE

1—Factory rebuilt Lima $\frac{1}{4}$ cu. yd. capacity. This machine can be equipped with either shovel, clamshell, dragline or drag shovel attachments. Very reasonably priced. Carries new machine guarantee. Located at New York.

1—Gas-Air Erie shovel 1 yd. capacity, A-1 condition. Ready for service. Located Richmond, Va.

Marion No. 32 Electric Shovel, $\frac{1}{4}$ cu. yd.; 50 hp. G. E. Motor; 3 phase, 60 cycle, 440 v. Splendid condition. Located New York City.

Complete Shovel Attachment for Type "O" Thew. Also, attachment for Type B and B-2 Eries located in New Jersey. Decided bargains.

P & H $\frac{1}{4}$ yd. gas shovel. Excellent condition, very attractive price. Located South Kearny, N. J.

1—Linn Tractor, 6-yd. capacity, with Waukesha Motor. Machine in very good condition. Priced to sell quickly. Located New York State.

We have both Steam and Gasoline Excavators ranging from $\frac{1}{2}$ to $\frac{1}{4}$ cu. yd. capacity in various parts of the country that will be sold at extremely low prices or leased with leased payments made applying on purchase price.

LIMA EXCAVATOR SALES AGENCY

Lima, O., Office: New York Office:
Lima Trust Bldg. 2351 Graybar Bldg.
Tel. Main 4824 420 Lexington Ave.
Tel. Mohawk 4-2173

Wire or phone at our expense.

FOR SALE

P. & H. Model 206, $\frac{3}{4}$ -yd. Dragline.
Byers, 10-ton Caterpillar Crane, $\frac{3}{4}$ -yd. Clam.
O. & S. 22 $\frac{1}{2}$ -ton Loco. Crane 50' Boom.
16—12-yd. Western Steel Beam Dump Cars.
10—50-ton capy. All Steel Twin Hopper Cars.
75-ton, 20x26" 6-Driver Switcher, A. S. M. R.
50-ton, 18x24" 6-Driver Switcher.
92-ton, 20 $\frac{1}{2}$ x28" Mikado (3-8-3) BUILT 1923.

85-ton, 18x20" 4-Driver Sad. Tank.
56-ton, 18x24" 4-Driver Sad. Tank.
WE HAVE OVER FORTY LOCOMOTIVES IN STOCK. REBUILT AND READY ALL TYPES. 10 TO 100 TONS

Southern Iron & Equipment Co.,
Atlanta, Ga.

FOR SALE

1—18 in. x 10 in. x 12 in.—1,000 gallon per minute Blake-Knowles Fire Underwriters Fire Pump No. 186801. Complete with 4—2 $\frac{1}{2}$ in. hose. Valves on pump, first class condition, F. O. B. Cars, Savannah, Ga.

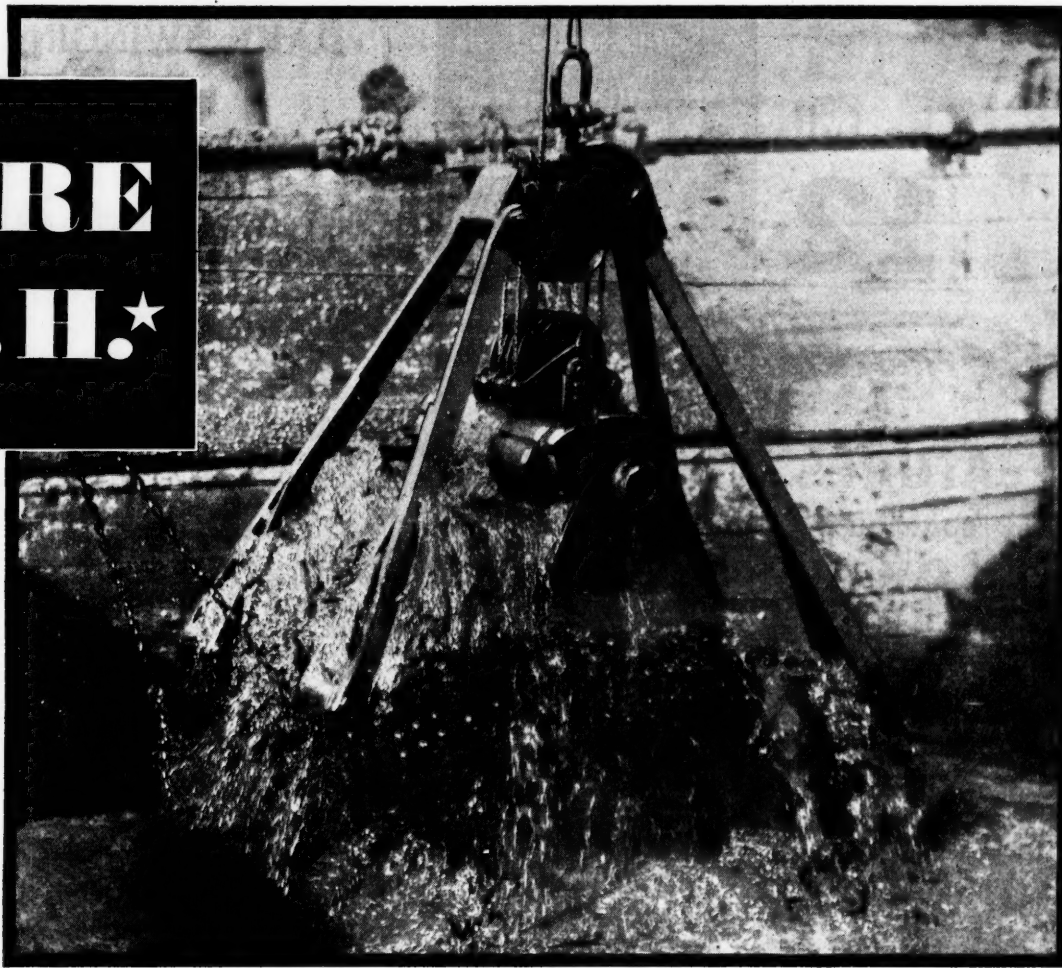
1—16 in. x 9 $\frac{1}{4}$ in. x 10 in. 500 gallon per minute Gardiner Fire Underwriters Fire Pump, equipped with 2—2 $\frac{1}{2}$ in. Hose. Valves on pump, Pump is guaranteed to be in first class condition and is complete with governor control on steam line and steam valve, also check and 8 in. gate valve for water end. F. O. B. Cars, Savannah, Ga.

1—50 H.P. Nagle Portable Locomotive Type Boiler mounted on wheels. Complete built for 150 lbs. working pressure. F. O. B. Cars, Cooler Siding, S. C.

2—20 M Capty. Lane Saw Mills-Carriage, Mandrel, Edger, Twin Feed Butting Saw, rolls and 60 H.P. Frick Center Crank Engine with Portable Locomotive Type Boiler mounted either on skids or wheels. Complete and in first class condition. F. O. B. Cars, Savannah, Ga.

T. G. ADAMS MACHINERY CO.
220 W. Bay St., Savannah, Ga.
P. O. Box 1597

**MORE
Y.P.H.★**



THAT'S WHAT MAKES AN OWEN A PAYING PRODUCER . . .

★More Yardage Per Hour in an Owen clamshell bucket—like more miles to the gallon in a good auto—means *lower operating costs*.

More Yardage Per Hour—that's going through the job in the shortest time. Making every trip count. Biting deep, closing in the material, getting full loads every time—often overloads. Fast, clean dumping. Easy, smooth performance.

More Yardage Per Hour links the Owen Guarantee with every Owen Bucket—"A Bigger Day's Work Than Any Other Bucket of the Same Weight and Capacity."

More Yardage Per Hour—that's why every Owen Bucket job is a profitable job.

Write us about the kind of work you have for a clamshell bucket, and we'll send definite data on the Owen that will do it for you with More' Yardage Per Hour.

The Owen Bucket Company, 6015 Breakwater Avenue, Cleveland, Ohio



Owen Buckets

A MOUTHFUL



AT EVERY BITE



The full
12

Sterling

FEATURES
contributing
to **LOWER**
OPERATING
COSTS

★ Malleable iron wheel guards, insure protection, easier dumping.

★ Handles metal or malle. Standardized design all interchangeable.

★ Changeable square bent leg shoes. Extra wear—twice the life.

★ Reinforced rodding top edge of trays. Holds shape, takes loading knocks. " " " " " "

★ Riveted double-cornered trays. Reinforcement for increased load tonnage. " " " " " "

★ Exact size and capacity trays. Interchangeable. Raises efficiency.

★ Complete stocks at 8 warehouses, insure prompt servicing and delivery.

★ Self-lubricated axle bearings. " " " " " " No oiling needed. Wheels easier. " " " " " "

★ "V" shaped pressed steel tray braces. Greater rigidity. " " " " " " Can't twist. " " " " " "

★ 10-spoke wheel, instead of 8. Smooth flush riveted spokes.

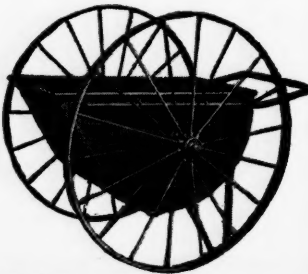
★ "V" braced channel steel legs, riveted. Strength with light weight. " " " " " "

★ Axle keyed to Malleable iron brackets. No nuts to loosen. " " " " " "

» » thru More loads per man per day. Increased manpower, thru perfect balance. Lowered maintenance, last longer, interchangeable. Raised efficiency, exact sizes. Prompt field delivery. Write for Full Facts!



No. 10A—Wide tray, capacity 4½ cu. ft. A. G. C. standard. Fits all contracting requirements and built to give the longest service. Solid and strong.



No. 6—The strongest built cart on the market. Full capacity body, no axle inside. Capacity 6 cu. ft. or 1200 lbs. Perfect balance, easy wheeling. 42" wheels.

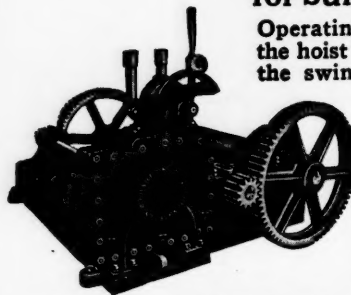
STERLING WHEELBARROW COMPANY
STERLING ON A WHEELBARROW MEANS MORE THAN STERLING ON SILVER
MILWAUKEE WISCONSIN

WAREHOUSES: CHICAGO, NEW YORK, PHILADELPHIA, PITTSBURGH, CLEVELAND, DETROIT, ST. LOUIS. DISTRIBUTORS IN ALL PRINCIPAL CITIES.

DAKE SWINGING ENGINES

for bull wheel derricks

Operating independently of the hoist engine, they cut down the swinging time and speed up derrick work.



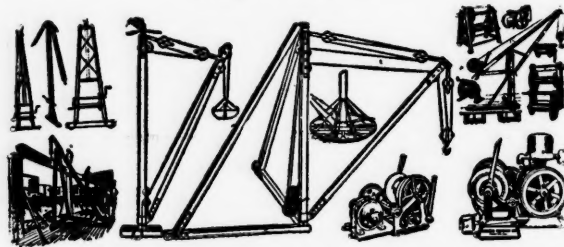
The engine has no dead centers and starts instantly from any position permitting quick accurate spotting of the load.

Also made for Electric Drive. Send for catalog.
DAKE ENGINE CO., Grand Haven, Mich.

DERRICKS and FITTINGS

Our Derricks Are Built Of Best Crucible Steel And Malleable And Select Timbers. Have Them Up To 10 Ton Capacity

Write For Prices



SASGEN DERRICK COMPANY
3101 Grand Avenue CHICAGO, ILL.

Hayward Buckets



A bucket for every digging and rehandling need . . . A size for every job.
THE HAYWARD CO., 50-52 Church St., N. Y.



INDUSTRIAL CAR EQUIPMENT



THE ATLAS CAR & MANUFACTURING CO.
Cleveland, Ohio

EASTON CARS

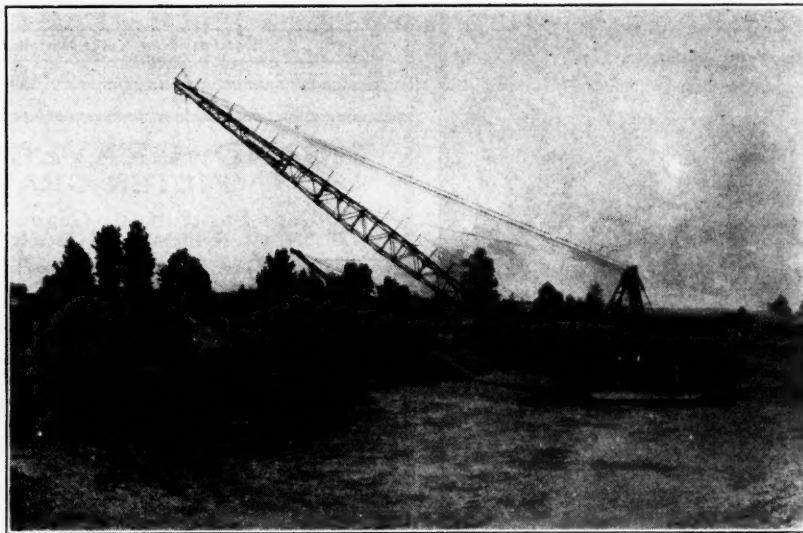


for every industrial purpose
Any type to your or our design
EASTON CAR & CONSTRUCTION CO.
10 E 40th Street, New York City. EASTON, PENNA.
PHILADELPHIA PITTSBURGH CHICAGO



CARS KOPPEL TRACK
KOPPEL KOPPEL

"No Foolin'" About Flood Control on the Arkansas River



Two Monighan Walking Draglines at work on Arkansas River levee near Varner, Ark. W. E. Callahan Construction Co., St. Louis, Mo., contractors.

Down there in the Razorback state they've seen just about all the flood water they care to. Levees are going up just as fast as time will permit, and when *time* is an important factor you'll usually find Monighan Walkers on the job.

In the picture above, two Monighan Walkers are shown working on the Arkansas River levee near Varner. The machine in the foreground has a 125 foot boom and 5 yard bucket.

Rapid maneuverability is one of the BIG reasons Monighan Walkers make such rapid progress. They can step off directly across or at any angle with the line of the work, thus adding materially to the effective boom reach.

MONIGHAN MANUFACTURING CORP.

937 N. Kilpatrick Ave., Chicago, Illinois

MONIGHAN

GEORGIA SAND & GRAVEL CO.,

AUGUSTA, GA.

We specialize in concrete and plaster sands. Capacity two tons per minute day and night. No order too big. Send us your specifications.

Only high grade products.

Our sand is used in testing departments of states.

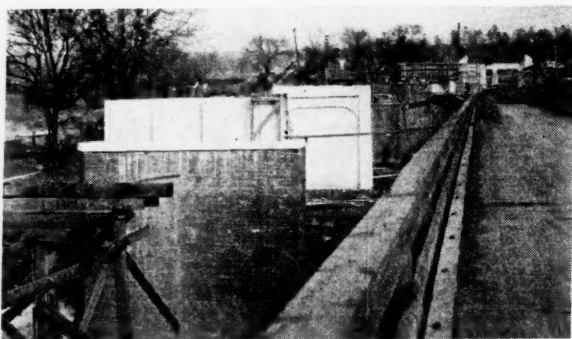
Prompt shipments guaranteed and the plant is within switching distance of Augusta.

Served by five railroads.

E. W. Hancock, Pres., Augusta, Ga.

Box No. 273

Phone No. 1932



We furnished the sand and gravel for this job, the rebuilding of the Jefferson Davis Memorial Bridge, across the Savannah River at Augusta, Ga. Contractor, Wannamaker and Wells, Inc., Columbia, S. C. F. B. Carson, Superintendent, and C. A. Marmelstein, Engineer for the State of Ga. B. Darnblatt, Inspector.

We produce in quantities to meet your requirements

SAND and WASHED GRAVEL

QUICK shipments by rail from Baltimore and North East, Md. or in scow and barge lots. Truck or rail shipments from Baltimore, Md.

The Arundel Corporation

MAIN OFFICE: ARUNDEL BUILDING
BALTIMORE, MARYLAND

Branches: New York, Norfolk and Miami

**SAND—GRAVEL—BRICK
FILTER GRAVEL**

Washed Sand and Gravel for Concrete Roads and Buildings

Filter Gravel, all sizes—Building Bricks

FRIEND & CO., INC.

River St., Petersburg, Va.



for economy and permanence in Road Building and General Construction

WOODSTOCK SLAG CORP.

Southern Railway Bldg., Birmingham, Ala.

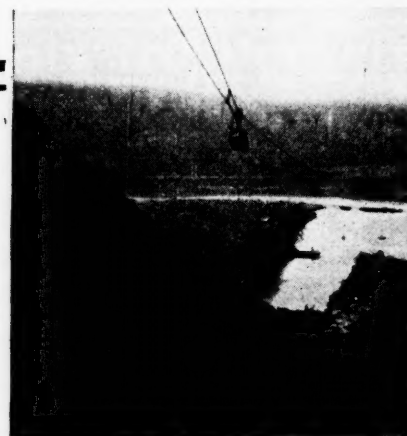
SAUERMAN SLACKLINE CABLEWAY

—The "Triple Duty" Excavator

LARGE earth-moving jobs—canal excavation, construction of earth embankments and dams, excavation of gravel from rivers, etc.—no longer require a large equipment investment.

Instead of using separate machines for excavating, conveying and elevating, the progressive contractor installs a Sauerman Slackline Cableway Excavator which handles the material in one continuous

Digging a Large Reservoir



Lifting Gravel From Bar In River

operation from the excavation to the place of disposal. These powerful, economical long range machines are adaptable to almost any excavating project where the materials have to be moved distances of from 200 to 1500 feet. They are furnished with gasoline, electric, steam or diesel-electric power units. Handling capacities range from 10 to 300 tons per hour.

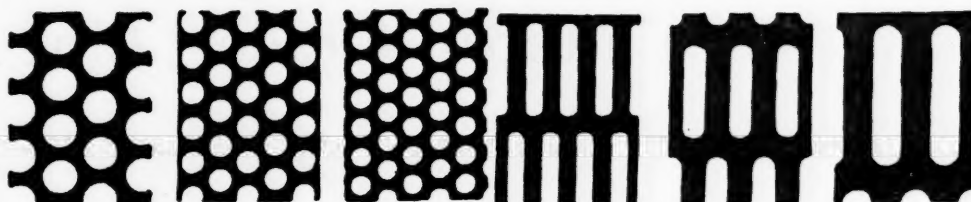
Write for 50-page illustrated catalog

SAUERMAN BROS., Inc., 468 S. Clinton St., CHICAGO

PERFORATED METAL SCREENS

OF EVERY SORT—FOR EVERY PURPOSE

All sizes
and
shapes
of Holes



Everything
in
Perforated
Metal

The Harrington & King Perforating Company

5631 Fillmore St., Chicago, Ill., U. S. A.

New York Office: 114 Liberty Street



Perforated Metal Screens for every purpose

also elevator buckets
of all kinds; chutes;
hoppers; stacks and
tanks.

MITCO Products—In-
terlocked Steel Grating;
Shur-Site Stair Treads;
Armorgrids.

HENDRICK MANUFACTURING CO.

44 Dundaff St., Carbondale, Pa.
Offices in Principal Cities

PERFORATED METALS HEADQUARTERS

Cotton Seed Oil Works a Specialty
Send for Samples

ERDLE PERFORATING CO. Rochester, N. Y.

Crushed Stone
Mascot Chatts Roofing Gravel
Asphaltic Roadway Gravel
Asphalt Filler Dust



AMERICAN LIMESTONE COMPANY
KNOXVILLE TENNESSEE

Perforated Metals SCREENS OF ALL KINDS

Chicago Perforating Co.

2445 West 24th Place
Tel. Canal 1459 CHICAGO, ILL.



No. 1

**MANHATTAN
PERFORATED METAL CO., INC.**

43 17-37th Street, Long Island City, N. Y.

PERFORATORS

of All Kinds of Metals for All Industries
Write for Copper, Brass, Tin, Zinc or
Aluminum Catalog



No. 3



No. 7

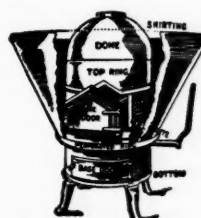


No. 22

SAND DRYERS

(With or without External Gratings)

A portable machine, daily capacity 5 to 7 tons.



This dryer has a low first cost, is easily and cheaply operated and guaranteed dry sand.

The low cost makes it valuable for companies needing dry sand on two or more jobs at the same time, thereby eliminating the handling cost of one point only.

Write for descriptive pamphlet
The Ripley Foundry & Machine Co.

Ripley, Ohio

For Contractors, Railroads,
Trolley Lines, Coal Com-
panies, Industrial Plants,
Foundries.

Perforated Metal Screens

Perfection, the result of years of experience.

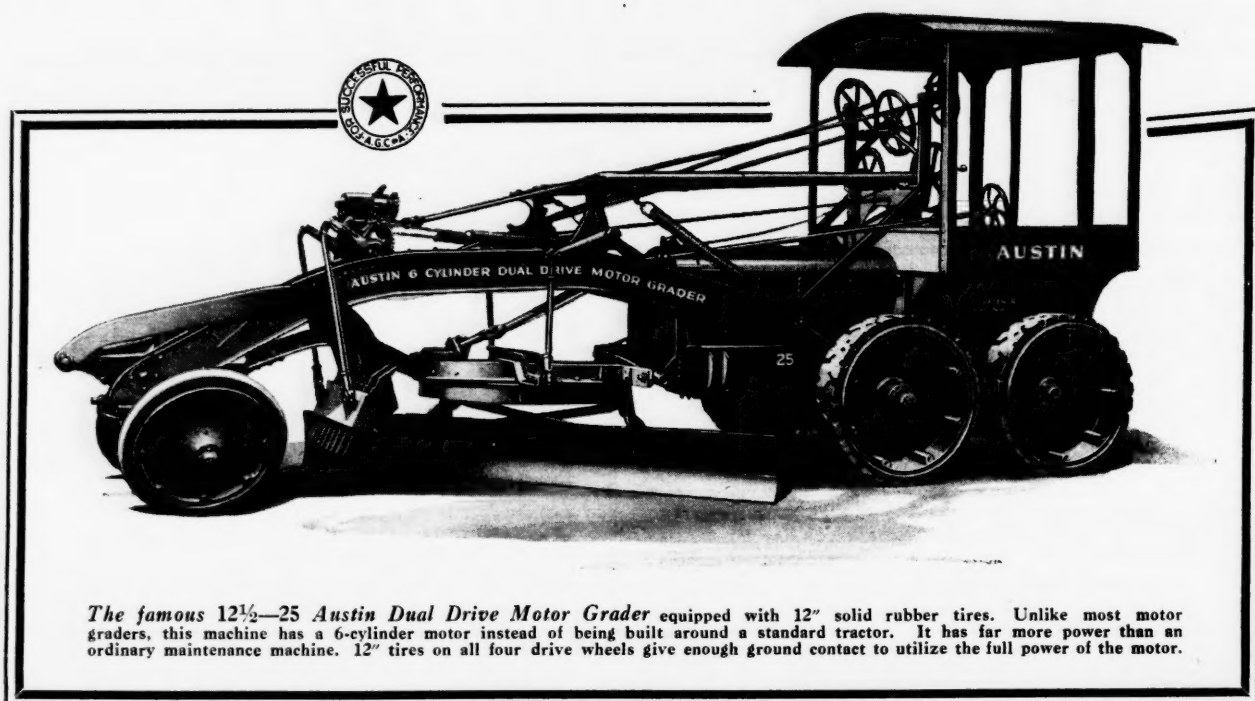
Mundt products embodies a degree of perfection derived from 43 years manufacturing perforated metals. This experience is placed at your disposal, and if you are in the market for perforated metals, you should not place your order until you have consulted with us.

CHARLES MUNDT & SONS

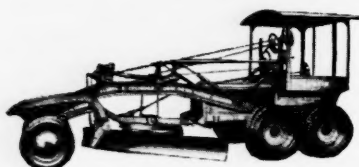
490 Johnston Avenue

JERSEY CITY, N. J.

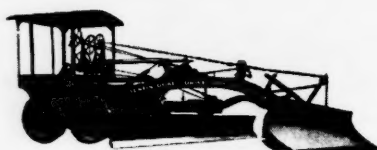
You will find
the machine you need in the *complete*
Austin-Western Motor Grader Line



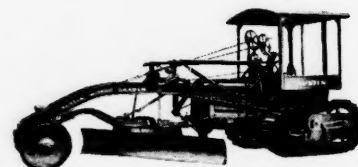
The famous 12½—25 Austin Dual Drive Motor Grader equipped with 12" solid rubber tires. Unlike most motor graders, this machine has a 6-cylinder motor instead of being built around a standard tractor. It has far more power than an ordinary maintenance machine. 12" tires on all four drive wheels give enough ground contact to utilize the full power of the motor.



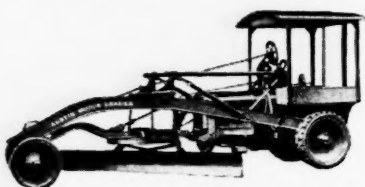
The 12½—25 equipped with pneumatic tires including dual pneumatics on the four drive wheels.



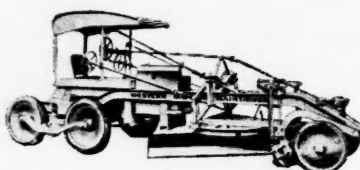
Model "20" Austin Dual Drive Motor Grader with Special Snow Plow Equipment.



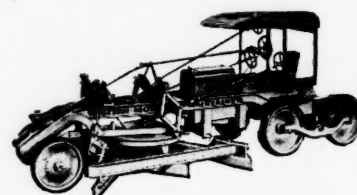
Model "20" Austin Dual Drive Motor Grader equipped with crawler tread.



The Austin Model "20" Single Drive Motor Grader.



The Western Motor Maintainer with blade and scarifier attachment.



The Western Motor Maintainer with solid steel drag attachment.

The A-W Motor Grader Line is most complete in every respect. It is made up of a wide variety of units, each with characteristics to suit individual preferences or to meet special conditions.

It includes graders powered by a number of widely known power plants as well as completely factory-built models with operating fea-

tures not possible when standard tractors are used. Write for complete information—now.

The Austin-Western Road Machinery Co.
400 N. Michigan Ave., Chicago, Ill. Branches in principal cities

Leaning Wheel Graders, Straight Wheel Graders, Motor Graders, Elevating Graders, Crawler Dump Wagons, Scarifiers, Rock Crushers, Portable Conveyors, Rollers, Motor Sweepers, Street Sweepers, Sprinklers, Road Oilers, Hot Patch Portable Asphalt Plants, Plows and Scrapers.

Austin-Western

ROAD MACHINERY

HANGING UP NEW RECORDS IN ELEVATING GRADER EFFICIENCY



WHEN an ADAMS Elevating Grader goes on the job, dirt moves quickly and at low cost. Pictured above is one of Mullen & Reinman's machines loading stiff, heavy gumbo day and night on Mississippi River levee work near St. Joseph, La. "The worst gumbo we've ever handled in our 40 years of building levees," says Mr. Mullen.

New and exclusive features give ADAMS exceptional efficiency and capacity. Anti-friction bearings throughout result in exceptionally light draft. New shaft and gear driven carrier eliminates chain troubles. New belt protection prolongs belt life. New all-welded frame construction produces enormous strength and rigidity with least weight. The 42-inch carrier is driven either by power take-off or auxiliary motor, making carrier operation independent of tractive conditions. Write today for complete information.

J. D. Adams Company
Indianapolis, Ind.

Atlanta

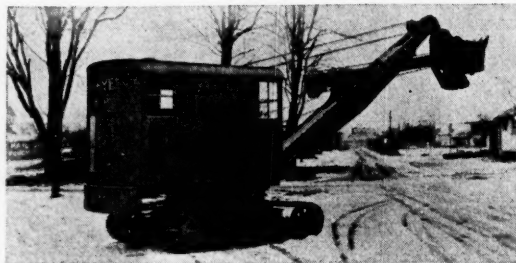
Memphis

Dallas

"COST LESS IN THE
LONG RUN ALWAYS"



ADAMS
ELEVATING GRADERS



Buckeye's $\frac{3}{8}$ -Yard Shovel Fully Measures Up

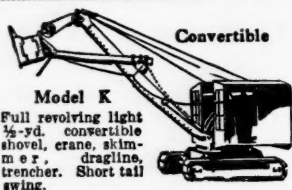
Handy Model O, illustrated, embodies all the dependable power, practical speed, operating conveniences, and economical performance that have characterized Buckeyes for nearly 35 years.

Now as a full-revolving Shovel, readily convertible to Clamshell, Crane, Dragline and Back-filler, it offers, within its capacity, greater earning ability per dollar of investment.

Write for descriptive bulletin.

The Buckeye Traction Ditcher Co.
Findlay, Ohio.

for over thirty years
Buckeye ✓



POWER SHOVELS Cranes, Trenchers SKIMMERS

Full or part circle

BAY CITY SHOVELS, Inc.
Bay City, Mich.

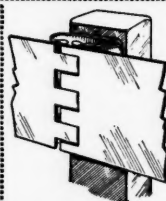


KNOWN RELIABILITY!

Bucyrus-Erie equipment is known the world over, for dependable, low-cost operation. Shovels, Draglines, Cranes—all sizes—Gas, Diesel, Electric, Gas + Air, Diesel + Air, Steam. Also Railway Cranes, Spreader Plows, etc.

Write for bulletins.

BUCYRUS-ERIE COMPANY
So. Milwaukee, Wis., Evansville, Ind., Erie, Pa.



Absorbs the Severest Shocks

The Resiliflex Guard Rail consists of broad galvanized plates, ends interlocking and supported under heavy tension by galvanized steel springs attached to posts.

The Resiliflex Guard Rail assists in absorbing the severest shocks and insures a continuous structure for guarding traffic.

Literature describing in detail the many advantages of Resiliflex Road Guards is yours for the asking.

National Traffic Guard Co.
215 Moreland Ave., N. E. ATLANTA, GA.



EXCAVATORS DRAGLINES **P&H** SHOVELS CRANES

Get Bulletins with complete description of new models. Made in sizes from $\frac{1}{2}$ to $3\frac{1}{2}$ cu. yds. All convertible.

HARNISCHFEGGER CORPORATION
4427 W. National Ave., Milwaukee, Wis.

ATTENTION CONTRACTORS!

You now can buy the

MACON CONCRETE ROLLER

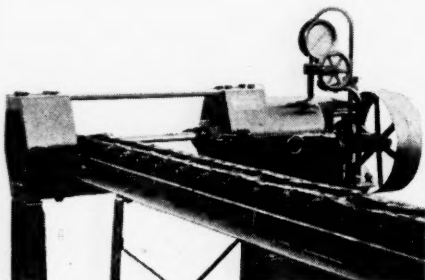
outright for \$50.00 F. O. B. Factory

Full information without obligation

Address MACON CONCRETE ROLLER CO., Macon, Ga.

100 TON TRACK PIN PRESS

ARRANGED FOR BELT OR MOTIVE POWER



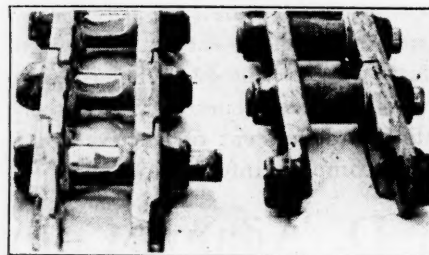
PRICE
\$1100.00

WEIGHT
4500 lbs.

These presses are especially built for rebushing the tracks of Caterpillar Tractors or any type of Crawler Tractor, and are a great saving in time over most Hydraulic Presses.

They are absolutely necessary for large users of Tractors and will more than pay for themselves in rebushing of five set of tracks.

Allow us the opportunity to give details of this saving to all dealers, and large users of Caterpillar Tractors or any Crawler Type Tractor.



TOMLIN-HARRIS MACHINE CO., 101 Ninth Street, CORDELE, GA.

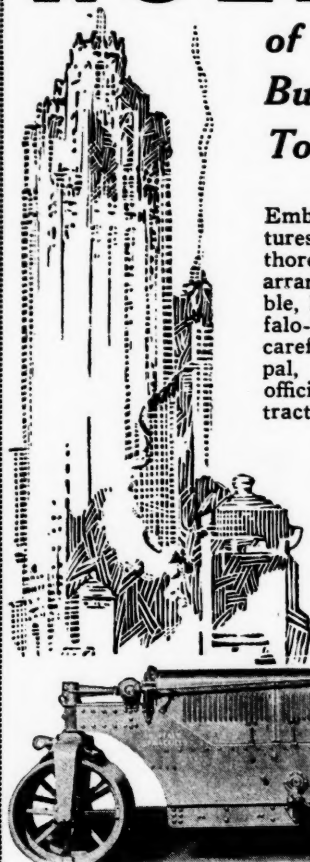
ROLLERS

*of Today,
Built to Meet
Tomorrow's Needs*

Embodying all worthwhile features of modern design . . . every thoroughly practical mechanical arrangement for smooth, reliable, lasting service . . . the Buffalo-Springfield roller merits the careful consideration of municipal, county and state highway officials, road and paving contractors.

Built in many practical sizes and weights. Three wheel and tandem. Steam and motor driven. Scarifier and other attachments optional.

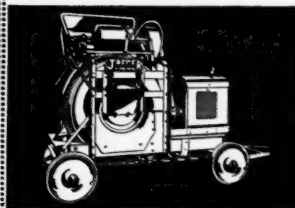
**The Buffalo-Springfield
Roller Co.**
Springfield, Ohio



1931 NEWS!

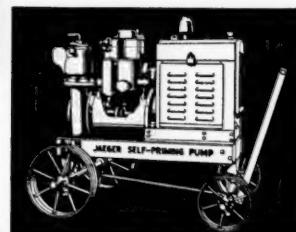
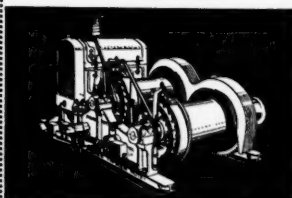
MIXERS

3½S to 84S sizes. Improved "Dual-Mix" Tilters, heavy duty Non-Tilters. Equipped for every need.



PUMPS

Increased power and capacity, with weight reduced. All sizes, types. New 1931 prices.



HOISTS

Timken Screw Thrust type; more power, more speed and ease of operation. Single, double drum. Gas, electric.

**Send for JAEGER
CATALOG..PRICES**

THE JAEGER MACHINE CO.
115 Dublin Avenue, Columbus, Ohio



OPPORTUNITIES

Industrial and Agricultural

The A. & W. P.—W. Ry. of Alabama and Georgia Railroads traverse a territory rich in material and potential resources. Attractive industrial sites. For information apply:

**Commercial and Agricultural
Dev. Dept.—Above Lines
Atlanta, Georgia**

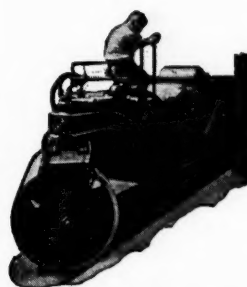
Tamping Costs Go Down!

There's far less time put in on hand tamping when you put down the asphalt with an ERIE Roller—

Better clearance, easier steering, shorter turning radius allow the ERIE to get into the close places and compact the asphalt close to curbs, corners, man-holes, etc.

Write today for Bulletin "M".

ERIE MACHINE SHOPS
Erie, Pa.



LARGEST PLANT

Filling,
Land Reclamation,
Canals
and Port Work

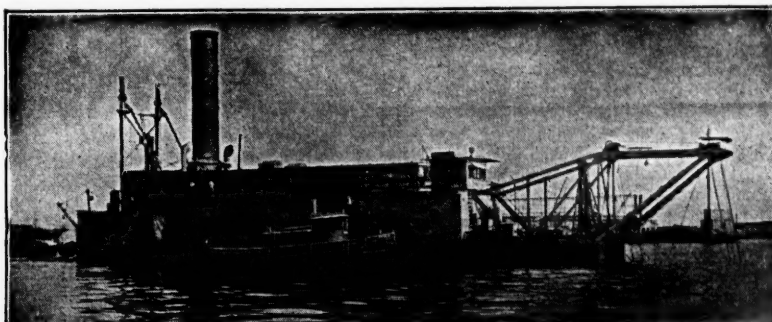
River and Har-
bor Improvements,
Deep Waterways
and Ship Channels.

Correspondence Invited
from Southern Officials
and Corporate and Pri-
vate Interests Every-
where.

NEW YORK
21 Park Row

DREDGING

LONGEST EXPERIENCE



We are especially
equipped to exe-
cute all kinds of
dredging, recla-
mation and port
works in South-
ern waters.

**CONTRACTORS
TO THE
FEDERAL GOVERNMENT**

Atlantic, Gulf and Pacific Company

HOUSTON
Scanlan Bldg.

Variegated Sandstone

is being used for
exterior and interior

CONSTRUCTION

In many of the
World's Most Beautiful
Examples of
Architecture.

Tennessee Central Railway

"The Road of Personal Service"

Nashville, Tennessee

LOOKING FLORIDA-WARD

for a future home

Back in 1914 under the caption, "The Call of Florida," the late Richard H. Edmonds wrote:

"In the past the romance of Florida appealed to the people of the country. They thought of its ideal climate, its outdoor life; of the flowers and palms in the months when biting, blasting blizzards make life almost unendurable in many other sections, or they thought of Florida as a place tinged with the romance and likewise with the profit of orange and grapefruit growing.

"Now thousands are thinking of Florida not only for these reasons, but because they realize that it possesses a variety of resources which make possible the widest and most profitable diversity of agriculture and manufactures."

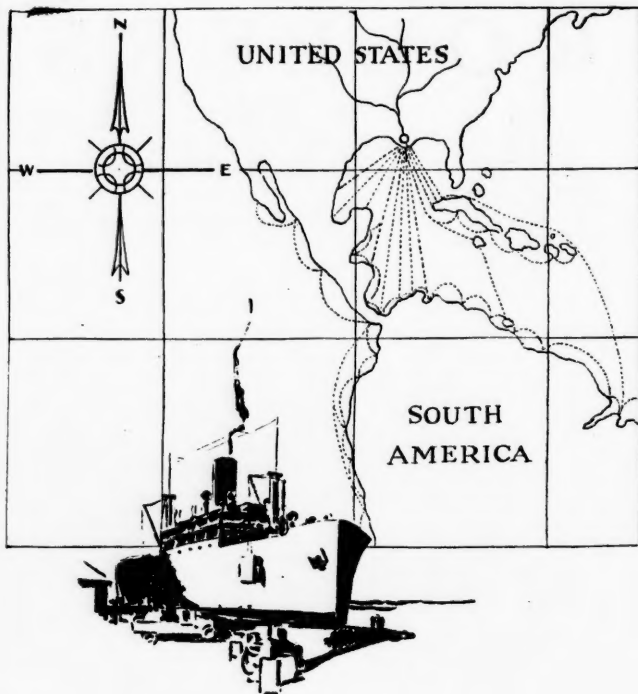
An increase of 51 per cent in Florida's population during the past ten years proves that half a million people did more than just "think" of Florida during that period.

Make your Florida thoughts a reality. At least pay us a visit.

We will gladly give agricultural information and send literature about our section—the East Coast of Florida.

Write—MODEL LAND CO.—Flagler System

St. Augustine, Florida



How is your Business in LATIN AMERICA?

Manufacturers of many lines in New Orleans are selling to Latin America. Countries along both the western and eastern coasts are making New Orleans their first source of supply. Here is a new market. Rich. Loyal. A market that may be a helpful answer to over-production.

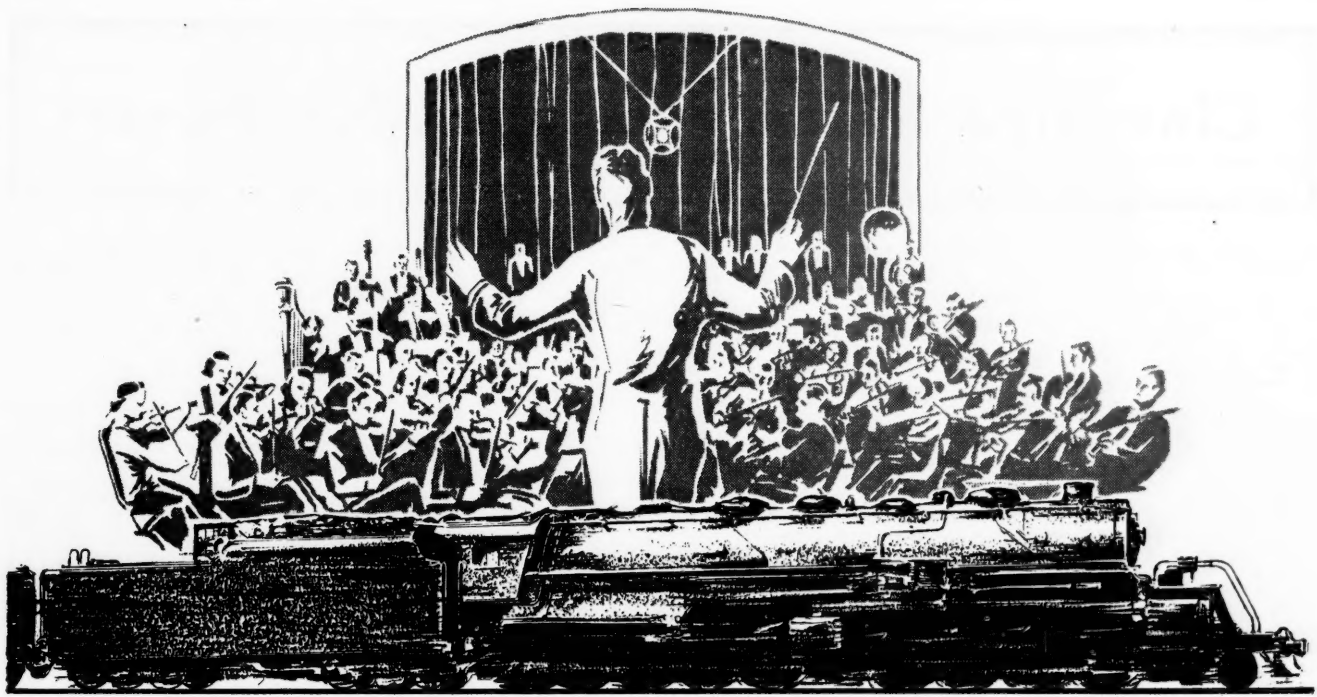
Your plant in New Orleans will be near raw materials, both domestic and imported. Your labor will be skilled Americans working efficiently in mild climate. It will be worth while to learn about the production and sales-power ready to work here for you.

NEW ORLEANS

ASSOCIATION OF COMMERCE



Write for "Survey of the New Orleans Industrial Zone," an interesting analysis of the possibilities here for your industry to capture new, rich markets.



SYMPHONIES

NOT many years ago a modern French composer, Honegger, wrote a descriptive symphony entitled "Pacific 4-6-2," in which every sound detail of the getting into action of a great locomotive was musically depicted. During the past year, the Norfolk and Western Railway designed and produced in its Roanoke Shops another symphony—a symphony of power; ten huge locomotives, veritable giants of the rails. Ultra-modern critics hailed the Honegger symphony with loud acclaim—but because of its erratic type it was never popular as a program number. The symphony of power produced by the Norfolk and Western Railway was likewise greeted with acclaim—and the enormous power of these gigantic locomotives will insure their popularity with shippers and receivers of freight. So effective have they proven that ten more of the same type are now under way.

These locomotives are the largest ever built by the railway—having an individual tractive power of 125,000 pounds and a weight of 583,000 pounds. Each is equipped with a new water-bottom 22,000 gallon tender; the largest ever used by the Norfolk and Western Railway, and next to the largest in the United States. Loaded with 26 tons of coal (and with water) the tender weighs 370,000 pounds. The combined weight of engine and tender is 953,000 pounds. The engine and tender have a wheel base of 102 feet, 9 inches, and a total length of 113 feet, 11 inches.

Thus the Norfolk and Western increases its present high operating efficiency and prepares for the traffic of the future. Its freight trains arrive and depart with dependable regularity and its service continues second to none.

Freight Traffic Department representatives of the railway, in key cities throughout the country, will welcome requests for information regarding its many-sided facilities.

NORFOLK AND WESTERN RAILWAY
ROANOKE • • • VIRGINIA

Classified Reference Index for Buyers

ABRASIVE MATERIALS.

Carborundum Co., Niagara Falls, N. Y.

ACCOUNTANTS (Cert. and Cost.)

Audit Company of the South, Atlanta, Ga.
Black & Co., Baltimore, Md.
Ernst & Ernst, New York, N. Y.
Hollowell, Gorham & Co., Greensboro, N.C.
Le Baron, E. T., Jacksonville, Fla.

AERIAL MAPS and SURVEYS.

Airmap Corp. of Amer., Brooklyn, N. Y.
Lacey & Co., Jas. D., New York, N. Y.

AIR COMPRESSORS (Stationary and Portable.)

De Laval Steam Turbine Co., Trenton, N.J.
Equipment Corp. of America, Chicago, Ill.
Gardner-Denver Co., Quincy, Ill.
General Electric Co., Schenectady, N. Y.
Ingersoll-Rand Co., New York, N. Y.
Novo Engine Co., Lansing, Mich.
Quincy Compressor Co., Quincy, Ill.
Sullivan Machinery Co., Chicago, Ill.
Westinghouse Traction Brake Co., Wilmerding, Pa.

AIR HEATERS.

Babcock & Wilcox Co., New York.

AIRPORT EQUIPMENT

International Derrick & Equipment Co., Columbus, Ohio.

AIRPORTS.

Shaw Co., Russell B., St. Louis, Mo.

ALUMINUM BRONZE POWDER.

Aluminum Co. of America, Pittsburgh.

AMMONIA Valves and Fittings.

Vogt Mch. Co., Henry, Louisville, Ky.

ANGLE IRON-WORKING MACHINERY.

Whitney Metal Tool Co., Rockford, Ill.

APPRAISERS.

Conard, William B., Burlington, N. J.
Main, Inc., Chas. T., Boston, Mass.

ARCHITECTS.

Boney, Leslie N., Wilmington, N. C.
Chase, Wm. J. J., Atlanta.
Main, Inc., Chas. T., Boston, Mass.
Milburn, Heister & Co., Wash., D. C.
Moyer Co., Tilghman, Allentown, Pa.
Preacher & Co., Inc., G. Lloyd, Atlanta.
Stirline & Co., J. E., Greenville, S. C.
Wheeler, Walter H., Minneapolis, Minn.
Widmer Engineering Co., St. Louis, Mo.
—(Gold Course, Landscape.)
Spoon & Lewis, Greensboro, N. C.

ARCHITECTS' SUPPLIES.

Weber Co., Inc., F., Philadelphia, Pa.

ARCHITECTURAL IRON WORK.

Dietrich Brothers, Baltimore, Md.
Virginia Bridge & Iron Co., Roanoke, Va.

ASPHALT.

Gulf Refining Co., Pittsburgh, Pa.

—(Emulsified.)

Headley Emulsified Products Co., Philadelphia, Pa.

—Filler.

American Limestone Co., Knoxville, Tenn.
Servicised Products Corp., Chicago, Ill.

—Paving.

Barber Asphalt Co., Philadelphia, Pa.

—(Plants.)

Simplicity System Co., Chattanooga, Tenn.

AUDITORS.

Ernst & Ernst, New York, N. Y.
Hollowell, Gorham & Co., Greensboro, N.C.
Le Baron, E. T., Jacksonville, Fla.

BABBITT METAL.

Ryerson & Sons, Inc., Jos. T., St. Louis and New York.

BACKFILLERS.

Buckeye Traction Ditcher Co., Findlay, Ohio.
Harscocht Corp., Milwaukee, Wis.
National Equipment Corp. (Insley, Parsons), Milwaukee, Wis.

BALLAST (Railroad.)

American Limestone Co., Knoxville, Tenn.

BANKERS and BROKERS.

Provident Saving Bank & Trust Co., Cincinnati, Ohio.

BANKS and TRUST COMPANIES.

Baltimore Commercial Bank, Balto., Md.
Baltimore Trust Co., Baltimore, Md.
First and Merchants National Bank, Richmond, Va.
Mercantile Trust Co., Baltimore, Md.

BARGES (Steel.)

American Bridge Co., New York, N. Y.
McClintic-Marshall Co., Pittsburgh, Pa.

BARS (Steel, Rounds, Flats, Hexagon and Squares.)

Carnegie Steel Co., Pittsburgh, Pa.
Carnegie Steel Co., Birmingham, Ala.
Gulf States Steel Co., Birmingham, Ala.
Knoxville Iron Co., Knoxville, Tenn.
Republic Steel Corp., Youngstown, Ohio.
Ryerson & Sons, Inc., Jos. T., St. Louis and New York.
Sweet's Steel Corp., Williamsport, Pa.
Tennessee Coal, Iron & Railroad Co., Birmingham, Ala.
Timken Roller Bearing Co., Canton, O.
Virginia Bridge & Iron Co., Roanoke, Va.
Youngstown Sheet & Tube Co., Youngstown, Ohio.

BATTERIES (Storage.)

Electric Storage Battery Co., Phila., Pa.

BEAMS, CHANNELS, ANGLES.

Belmont Iron Works, Philadelphia, Pa.
Carnegie Steel Co., Pittsburgh, Pa.
Chattanooga Boiler & Tank Co., Chattanooga, Tenn.
Tennessee Coal, Iron & Railroad Co., Birmingham, Ala.
Virginia Bridge & Iron Co., Roanoke, Va.

BEARINGS (Anti-friction.)

Timken Roller Bearing Co., Canton, Ohio.
—(Line Shaft.)
Wood's Sons Co., T. B., Chambersburg, Pa.
—(Roller.)
Timken Roller Bearing Co., Canton, Ohio.

BELT (Chain.)

Diamond Chain & Mfg. Co., Indianapolis.

—(Leather, Canvas, Rubber.)

Charlotte Leather Belting Co., Charlotte, N. C.

—Dressing.

Dixon Crucible Co., Jos., Jersey City, N.J.

—Fasteners.

Flexible Steel Lacing Co., Chicago, Ill.

—Lacing (Steel Hinges.)

Flexible Steel Lacing Co., Chicago, Ill.

BELT CONVEYORS.

Barber-Greene Co., Aurora, Ill.

BILLETS (Basic Open Hearth.)

Gulf States Steel Co., Birmingham, Ala.
Republic Steel Corp., Youngstown, Ohio.
Tennessee Coal, Iron & Railroad Co., Birmingham, Ala.

BINS (Steel Loading.)

Blaw-Knox Co., Pittsburgh, Pa.

Butler Bldg Co., Waukegan, Wis.

BLASTING POWDER and Accessories.

Du Pont de Nemours & Co., E. I., Wilmington, Del.

BLINDS (Venetian and Awning.)

Wilson Corp., The J. G., New York.

BLOCKS (Chain)

Wright Mfg. Co., Lisbon, Ohio.

—(Friction.)

Palmer Asbestos & Rubber Corp., Chicago.

—(Tackle, for Wire and Manila Rope.)

Patterson Co., W. W., Pittsburgh.

BOILERS (New.)

Babcock & Wilcox Co., The, New York.
Charleston Dry Dock & Machine Co., Charleston, S. C.

Chattanooga Boiler & Tank Co., Chattanooga, Tenn.

Cole Mfg. Co., R. D., Newnan, Ga.

Combustion Engr. Corp., New York, N. Y.

Hedges Walsh Weldner Co., Chattanooga, Tenn.

Lombard Iron Works & Supply Co., Augusta, Ga.

Schofield's Sons Co., J. S., Macon, Ga.

Titusville Iron Works Co., Titusville, Pa.

Vogt Mch. Co., Henry, Louisville, Ky.

—(Oil.)

Babcock & Wilcox Co., New York.

—(Used.)

Delta Equipment Co., Philadelphia, Pa.

O'Brien Machinery Co., Philadelphia, Pa.

Randle Machinery Co., The, Cincinnati, O.

Zelicker Supply Co., W. A., St. Louis.

BOILER SETTINGS.

Babcock & Wilcox Co., New York.

Harbison-Walker Refractories Co., Pittsburg.

—Tubes.

Babcock & Wilcox Co., New York.

National Tube Co., Pittsburgh, Pa.

Ryerson & Sons, Inc., Jos. T., St. Louis and New York.

—Tubes (Charcoal, Iron.)

Reading Iron Co., Reading, Pa.

BOLTS, Rivets, Studs, Washers.

Bethlehem Steel Co., Bethlehem, Pa.

Progressive Mfg. Co., Torrington, Conn.

Republic Steel Corp., Youngstown, Ohio.

Russell, Burdall & Ward Bolt & Nut Co., Port Chester, N. Y.

Ryerson & Sons, Inc., Jos. T., St. Louis and New York.

Virginia Bridge & Iron Co., Roanoke, Va.

—(Track.)

Sweet's Steel Co., Williamsport, Pa.

BOND BUYERS.

Garraway & Co., S. G., Chicago.

Hanchett Bond Co., Inc., The, Chicago.

Law & Co., A. M., Spartanburg, S. C.

Mercantile Trust Co., Baltimore, Md.

Nurven & Co., John, Chicago, Ill.

Provident Savings Bank and Trust Co., Cincinnati, Ohio.

BORINGS (Cores.)

Kennedy-Riegger Drilling Co., New York City.

Mott Core Drilling Co., Huntington, W. Va.

Pennsylvania Drilling Co., Pittsburgh, Pa.

Southern Drilling Co., Saltville, Va.

Sprague & Henwood, Inc., Scranton, Pa.

BOXES (Paper.)

Old Dominion Box Co., Lynchburg, Va.

BRAKE LINING

Palmer Asbestos & Rubber Corp., Chicago.

BRASS GOODS.

Copper and Brass Research Assn., New York.

Mueller Co., Decatur, Ill.

BRICK (Common Building.)

Friend & Co., Inc., Petersburg, Va.

—(Fire.)

North Amer. Refractories Co., Cleveland, O.

Taylor Sons Co., Charles, Cincinnati.

—(Vitrified, Paving.)

National Paving Brick Mfrs. Assn., Washington, D. C.

—and Clayworking Machy.

Steel & Sons, J. C., Stateville, N. C.

BRIDGE (Asphalt Planking)

Servicised Products Corp., Chicago, Ill.

—(Operating Machinery.)

Earle Gear & Machine Co., Phila., Pa.

—Slabs

Kerlow Steel Flooring Co., Jersey City, N.J.

—Timber.

American Crosscutting Co., Louisville, Ky.

Kirby Lumber Co., Houston, Texas.

BRIDGES (Concrete.)

Atlantic Bridge Co., Greensboro, N. C.

—(Creosoted Wood.)

Atlantic Bridge Co., Greensboro, N. C.

—(Steel.)

American Bridge Co., New York, N. Y.

Atlantic Bridge Co., Greensboro, N. C.

Belmont Iron Works, Philadelphia, Pa.

Bristol Steel & Iron Works, Inc., Bristol, Va.

Champion Bridge Co., Wilmington, O.

Converse Bridge & Steel Co., Chattanooga, Tenn.

Ingalls Iron Works Co., Birmingham, Ala.

International Derrick & Equipment Co., Columbus, Ohio.

McClintic-Marshall Co., Pittsburgh, Pa.

Nashville Bridge Co., Nashville, Tenn.

Virginia Bridge & Iron Co., Roanoke, Va.

BRONZE (Architectural.)

Heath Company, J. S., Waukegan, Ill.

Michaels Art Bronze Co., Covington, Ky.

BUBBLERS.

Rundle-Spence Mfg. Co., Milwaukee, Wis.

BUCKETS (Clam Shell.)

Blaw-Knox Co., Pittsburgh, Pa.

Hayward Co., The, New York, N. Y.

Industrial Brownhoist Corp., Cleveland, O.

Owen Bucket Co., The, Cleveland, Ohio.

—(Dredging, Excavating, Sewer, etc.)

Hayward Co., The, New York, N. Y.

Monaghan Mfg. Corp., Chicago, Ill.

Owen Bucket Co., The, Cleveland, Ohio.

Stuebner Iron Works, G. L., Long Island City, N. Y.

—(Elevator.)

Hendrick Mfg. Co., Carbondale, Pa.

Webster & Weller Mfg. Co., Chicago.

—(Orange Peel.)

Hayward Co., The, New York, N. Y.

—(Ore Handling.)

Hayward Co., The, New York, N. Y.

Owen Bucket Co., The, Cleveland, Ohio.

Stuebner Iron Works, G. L., Long Island City, N. Y.

BUILDERS and Contractors.

Cowper Co., Inc., The John W., Richmond, Va.

Moyer Co., Tilghman, Allentown, Pa.

Thompson & Bros., T. C., Charlotte, N. C.

White Engineering Corp., J. G., New York.

BUILDINGS (Industrial.)

Belmont Iron Works, Philadelphia, Pa.

Blaw-Knox Co., Pittsburgh, Pa.

Butler Mfg. Co., Kansas City, Mo.

International Derrick & Equipment Co., Columbus, O.

McClintic-Marshall Co., Pittsburgh, Pa.

Nashville Bridge Co., Nashville, Tenn.

Truscon Steel Co., Youngstown, O.

Virginia Bridge & Iron Co., Roanoke, Va.

—(Portable Sheet Metal.)

Butler Mfg. Co., Kansas City, Mo.

International Derrick & Equipment Co., Columbus, O.

BULKHEADS.

Shore-Line Builders, Inc., Jacksonville, Fla.

Snare Corp., Frederick, New York, N. Y.

BULLDOZERS.

Trackson Co., Milwaukee, Wis.

BUSINESS METHODS.

Ernst & Ernst, New York, N. Y.

CABLE (Elevator.)

Hoebling's Sons Co., John A., Trenton, N. J.

—(Stad Link.)

Woodhouse Chain Works, Trenton, N. J.

—and Wire (Electric.)

American Steel & Wire Co., Balto., Md.

Okonite Co., New York, N. Y.

Roebbling's Sons Co., John A., Trenton, N. J.

Western Electric Co., New York City.

CABLEWAYS (Overhead Suspension.)

Frederick & Bascom Rope Co., St. Louis.

Lidgerwood, Mfg. Co., Elizabeth, N. J.

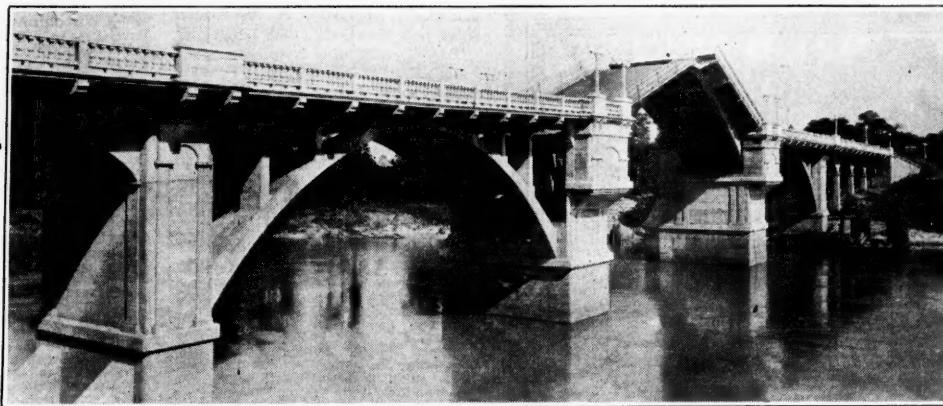
Sauerman Bros., Chicago, Ill.

CALCIUM CHLORIDE.

Grasselli Chemical Co., Inc., Birmingham.

CAN and Box-Making Machinery (Tin.)

Bliss Co., E. W., Brooklyn, N. Y.



BRIDGE ACROSS FLINT RIVER, BAINBRIDGE, GA.
Built for Georgia Highway Department by Hardaway Contracting Co., Columbus, Ga.

Speed Up Public Construction

\$600,000,000 will be expended on the South's Highway Improvement Program this year. It represents the South's greatest effort.

Big problems in engineering and construction are ahead.

Over 20 years' experience in the construction of Bridges, Roads and Dams enables us to promptly and effectively cooperate with Municipalities, State Highway Departments and Public Officials in solving difficult problems and to get their work under way with least possible delay.

Our experienced staff of engineers are at your command.

Hardaway Contracting Co.



Columbus, Georgia

ESTABLISHED 1900
A. K. ROBINS & COMPANY
CANNING MACHINERY AND SUPPLIES
For Fruits, Vegetables, Sea Food, Etc.
Write for Catalog
LOMBARD AND CONCORD STREETS - BALTIMORE, MD.

CHAMPION BRIDGE COMPANY
WILMINGTON, OHIO
Manufacturers of
Bridges and Structural Work
Atlanta, Ga. Southern Offices:
FORT LAUDERDALE, FLA.

CHARLESTON DRY DOCK & MACHINE CO.
Successors to VALK & MURDOCH CO.
MARINE AND STATIONARY BOILERS
Repairs to Steel and Wooden Vessels
8,000-ton Dry Dock—1,500 and 600-ton Marine Railways
CHARLESTON, S. C.

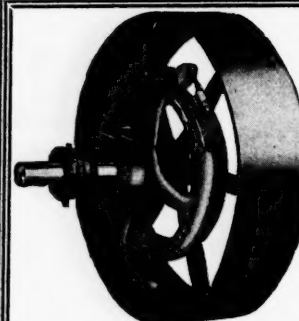
ATLANTIC BRIDGE COMPANY
ENGINEERS - CONTRACTORS - ERECTORS
BRIDGES - FOUNDATIONS - BUILDINGS
GREENSBORO, NORTH CAROLINA

Vogt PRODUCTS
REFRIGERATING AND ICE
MAKING MACHINERY—
WATER TUBE & HORIZONTAL
RETURN TUBULAR BOILERS
DROP FORGED STEEL VALVES
& FITTINGS—OIL REFINERY
EQUIPMENT—Ask for Bulletins
HENRY VOGT MACHINE CO., Manufacturers, Louisville, Ky.

ROANOKE IRON & BRIDGE WORKS, Inc.
Structural and Ornamental Iron
Wrought Steel Fences
Gray Iron Castings
FROM 1 TO 10,000 LBS.
Write for Estimates ROANOKE, VA.

Patterson-Built
TACKLE BLOCKS
A reliable block to meet every requirement.
Write for Catalog No. 22
W. W. Patterson Co., 57 Water St., Pittsburgh, Pa.

NASHVILLE BRIDGE COMPANY
NASHVILLE, TENN.
Engineers—Fabricators and Erectors
of Bridges, Buildings, Transmission
Towers and other Types of Structural
Steel.

**Confidence**

There will never be any feeling of uncertainty when you have installed Caldwell Friction Clutches in your plant. They inspire confidence. Their extreme simplicity and strength make them positively trouble-proof—assure you of uninterrupted service year after year. The Caldwell Clutch is constructed like the standard automobile brake, a flexible band lined with asbestos gripping the entire circumference of the friction ring and transmitting all the power instantly. One lever controls, one screw adjusts it. Don't be satisfied with poor clutch service; get a Caldwell.

Send for Catalog.

W. E. Caldwell Co., Incorporated
270 E. Brandeis St., Louisville, Ky.



Mountain State Steel Foundries
ELECTRIC
Steel and Alloy Casting Specialists
Eight ounces to
Five hundred pounds
PARKERSBURG, W. VA.

**CLEAN, PRECISE CASTINGS**

Complete Foundry Service
for
Quantity Production
Brass, Bronze, Iron, Aluminum,
Nickel, Silver.

Contract Work on Small Machines and Devices

THE **RICHMOND**
FOUNDRY & MANUFACTURING CO., INC.

RICHMOND, VIRGINIA.

"A Dependable Source of Supply"

HIGH GRADE GRAY IRON & SEMI-STEEL CASTINGS

From one pound to ten thousand pounds.
Careful attention to detail.
Your requirements solicited, quick service.

JEFFERSON FOUNDRY COMPANY
Birmingham, Alabama

P. O. Box 147

Phone 9-4850

BRICK—CHIMNEYS—CONCRETE
BOILER BRICKWORK
The Rust Engineering Co.
Engineers and Contractors
BIRMINGHAM, ALABAMA
PITTSBURGH—WASHINGTON—NEW YORK—CHICAGO

Steps (Safety.)

Irving Iron Works, Co., Long Island City, N. Y.

CASTINGS (Alloy.)

Mountain State Steel Foundries, Parkersburg, W. Va.

(Brass, Bronze and Aluminum.)Richmond Foundry & Mfg. Co., Richmond, Va.
Savannah Mch. & Fdry. Co., Savannah, Ga.**(Chilled Iron.)**

Fuller Lehigh Co., Fullerton, Penna.

(Gray Iron.)Fuller Lehigh Co., Fullerton, Penna.
Glamorgan Pipe & Fdry. Co., Lynchburg, Va.
Jefferson Foundry Co., Birmingham, Ala.
Richmond Foundry & Mfg. Co., Richmond, Va.
Roanoke Iron & Bridge Works, Inc., Roanoke, Va.
Salem Fdry. & Mch. Wks., Salem, Va.
Savannah Mch. & Fdry. Co., Savannah, Ga.
U.S. Pipe & Foundry Co., Burlington, N.J.**(Malleable Iron and Steel.)**

Timken Roller Bearing Co., Canton, O.

(Semi-Steel.)Jefferson Foundry Co., Birmingham, Ala.
Salem Fdry. & Mch. Wks., Salem, Va.**(Steel.)**Bethlehem Steel Co., Bethlehem, Pa.
Crucible Steel Casting Co., Lansdowne, Delaware Co., Pa.
Deemer Steel Casting Co., New Castle, Del.
Lunkenheimer Co., Cincinnati, Ohio.
Mountain State Steel Foundries, Parkersburg, W. Va.**CEILING (Metal.)**

Milcor Steel Co., Milwaukee, Wis.

CEMENT (High Temperature.)

Harbison-Walker Refractories Co., Pittsburg, North American Refractories Co., Cleveland, Ohio.

(Portland.)Alpha Portland Cement Corp., Birmingham, Ala.
Louisville Cement Co., Louisville, Ky.
Portland Cement Assn., Chicago, Ill.**"Guns."**

Cement-Gun Co., Inc., Allentown, Pa.

Machinery.

Troyer Engr. & Mfg. Co., Allentown, Pa.

CHAIN BLOCKS (See Blocks, Chain.)**CHAINS (Dredge, Quarry, Steam Shovel.)**Knoxville Iron Co., Knoxville, Tenn.
Woodhouse Chain Works, Trenton, N. J.**(High Speed Roller.)**

Diamond Chain & Mfg. Co., Indianapolis.

(Silent Drive.)

Diamond Chain & Mfg. Co., Indianapolis.

(Sprocket.)

Chain Belt Co., Milwaukee, Wis.

(Welded.)

Woodhouse Chain Works, Trenton, N. J.

CHAIRS (Opera and Theatre.)

Andrews Co., A. H., Chicago, Ill.

CHEMICALS.Davison Chemical Co., Baltimore, Md.
Grasselli Chemical Co., Inc., Birmingham.**CHEMISTS, CHEMICAL ENGINEERS (Analytical.)**Barrow-Agee Laboratories, Memphis, Tenn.
Flood & Co., Walter H., Chicago, Ill.
Froehling & Robertson, Inc., Richmond, Va.
Hunt Co., Robert W., Chicago, Ill.
Moise, Bassett & Slaughter, Phila., Pa.
Moss, Jr., W. Wade, Columbus, Ga.
Pittsburgh Testing Laboratories, Pittsburgh, Pa.
Southwestern Laboratories, Fort Worth, Tex.
Stillman & Van Sien, New York.
Wiley & Co., Inc., Baltimore, Md.**(Consulting, Paper Industry.)**

Froehling & Robertson, Inc., Richmond, Va.

CHIMNEYS (Concrete.)

Rust Engineering Co., Birmingham, Ala.

(Radial Brick.)

Rust Engineering Co., Birmingham, Ala.

CHLORIDE ACCUMULATOR.

Electric Storage Battery Co., Phila., Pa.

CIRCUIT BREAKERS.I. T. E. Circuit Breaker Co., Phila., Pa.
Westinghouse Electric & Mfg. Co., E. Pittsburgh, Pa.**CLOCKS (For all purposes.)**

Kaiser Clock Co., L. E., Baltimore, Md.

(Watchman's Portable.)Davis-Paradis Watchman's Clock Corp., New York, N. Y.
Kaiser Clock Co., L. E., Baltimore, Md.**CLOTH (Wire.)**

Newark Wire Cloth Co., Newark, N. J.

CLUTCHES (Friction.)Caldwell Co., Inc., W. E., Louisville, Ky.
Wood's Sons Co., T. E., Chambersburg, Pa.**COAL (Bituminous.)**Bloss-Sheffield Steel & Iron Co., Birmingham, Ala.
Tennessee Coal, Iron & Railroad Co., Birmingham, Ala.**—and Ash-Handling Mch.**Chain Belt Co., Milwaukee, Wis.
Hayward Co., The, New York, N. Y.
Industrial Brownhoist Corp., Cleveland, O.
Northwest Engineering Co., Chicago.
Webster & Weller Mfg. Cos., Chicago.**—Tipples.**American Bridge Co., New York, N. Y.
Virginia Bridge & Iron Co., Roanoke, Va.**COATINGS (Protective.)**

Headley Emulsified Products Co., Philadelphia, Pa.

COCKS (Service.)

Merco Nordstrom Valve Co., San Francisco, Calif.

COKE.Bloss-Sheffield Steel & Iron Co., Birmingham, Ala.
Tennessee Coal, Iron & Railroad Co., Birmingham, Ala.**COLUMNS (Cast Iron.)**

U. S. Pipe & Fdry. Co., Burlington, N. J.

COMPRESSORS (Gasoline Extraction.)

Sullivan Machinery Co., Chicago, Ill.

CONCRETE (Block Machinery.)

Blystone Mfg. Co., Cambridge Springs, Pa.

—Construction (Reinforced.)Cement-Gun Co., Inc., Allentown, Pa.
Cement Gun Construction Co., Chicago.
Rust Engineering Co., Birmingham, Ala.**—Floor Slabs.**

Federal-American Cement Tile Co., Chicago.

—Information Only.

Portland Cement Assn., Chicago, Ill.

—Mixers.Blystone Mfg. Co., Cambridge Springs, Pa.
Chain Belt Co., Milwaukee, Wis.
Dunning & Boschert Press Co., Inc., Syracuse, N. Y.
Equipment Corp. of America, Chicago, Ill.
Jaeger Machine Co., Columbus, Ohio.
Lansing Co., Lansing, Mich.**—Pipe Machinery (See Pipe Machinery, Concrete.)****—Placing Equipment.**

National Equipment Corp. (Insley Division), Milwaukee, Wis.

—Roofing Tile.

Federal-American Cement Tile Co., Chicago.

CONDENSERS.Ingersoll-Rand Co., New York, N. Y.
Manistee Iron Works Co., Manistee, Mich.
Westinghouse Electric & Mfg. Co., E. Pittsburgh, Pa.**CONDUITS (Electric, Interior, Steel.)**Western Electric Co., New York, N. Y.
Youngstown Sheet & Tube Co., Youngstown, Ohio.**CONTRACTORS (Bridge.)**Kansas City Bridge Co., Kansas City, Mo.
Snare Corp., Frederick, New York.**(Drainage and Dredging.)**Arundel Corp., The, Baltimore, Md.
Atlantic Gulf and Pacific Co., New York.**(Electrical.)**Virginia Engineering Co., Inc., Newport News, Va.
Walker Electrical Co., Atlanta, Ga.
Warner Service Co., Knoxville, Tenn.
Webb Electric Co., Anderson, S. C.**(Foundations and Dams.)**

Snare Corp., Frederick, New York, N. Y.

(General.)Angle-Blackford Co., Greensboro, N. C.
Blair, Algernon, Montgomery, Ala.
Burkes, Inc., J. V. & B. T., New Orleans.
Charleston Constructors, Inc., Charleston, S. C.
Cornell Young Co., Inc., Macon, Ga.
Copper Co., Inc., John W., Richmond, Va.
Fiske-Carter Constr. Co., Greenville, S. C.
Gridley Constr. Co., Lee A., Knoxville, Tenn.
Saville, Inc., Allen J., Richmond, Va.

Smallman Construction Co., Birmingham.
Snare Corp., Frederick, New York, N. Y.
Thompson & Bros., T. C., Charlotte, N. C.
Tucker & Laxton, Charlotte, N. C.
White Engineering Corp., J. G., New York.

—(Industrial Buildings.)

Angle-Blackford Co., Greensboro, N. C.
Blair, Algernon, Montgomery, Ala.
Cowper Co., Inc., John W., Richmond, Va.
Flake-Carter Constr. Co., Greenville, S. C.
Smallman Construction Co., Birmingham.
Snare Corp., Frederick, New York, N. Y.
Thompson & Bros., T. C., Charlotte, N. C.
Tucker & Laxton, Charlotte, N. C.
Virginia Engineering Co., Inc., Newport News, Va.
White Engineering Corp., J. G., New York.

—Mill Village.

Hornbuckle Contracting Co., Atlanta, Ga.

—(Plastering.)

Jennings & Co., Floyd, Atlanta, Ga.

—(Power Piping.)

Poe Piping & Heating Co., Greenville, S. C.

—(Power Plants.)

Snare Corp., Frederick, New York, N. Y.
Virginia Engineering Co., Inc., Newport News, Va.

—(Railroad.)

Cornell-Young Co., Inc., Macon, Ga.

—(Reinforced Concrete.)

Blair, Algernon, Montgomery, Ala.
Cement Gun Construction Co., Chicago.
Gunite Conc. & Constr. Co., Kansas City.
Tucker & Laxton, Charlotte, N. C.

—(Road and Street Paving.)

Flake-Carter Constr. Co., Greenville, S. C.
Gridley Constr. Co., Lee A., Knoxville, Tenn.

Hornbuckle Contracting Co., Atlanta, Ga.

McCrory Co., J. B., Atlanta, Ga.

Virginia Engineering Co., Inc., Newport News, Va.

—(Sewerage and Waterworks.)

Gridley Constr. Co., Lee A., Knoxville, Tenn.

Hardaway Contracting Co., Columbus, Ga.

Hornbuckle Contracting Co., Atlanta, Ga.

McCrory Co., The J. B., Atlanta, Ga.

Snare Corp., Frederick, New York, N. Y.

Tucker & Laxton, Charlotte, N. C.

Virginia Engineering Co., Inc., Newport News, Va.

—(Sprinkler System.)

Poe Piping & Heating Co., Greenville, S. C.

—(Water-Works.)

Pittsburgh-Des Moines Steel Co., Pittsburgh, Pa.

—Machinery and Supplies.

(New.)

Bay City Shovels, Inc., Bay City, Mich.

W-K-M Co., Inc., Houston, Texas.

—Machinery and Supplies.

(Used.)

Adams Mch. Co., T. G., Savannah, Ga.

Lima Excavator Sales Agency, Lima, Ohio.

Marine Metal & Supply Co., New York.

Phillips, Inc., Chester A., Chicago.

CONTRACT WORK WANTED.

(See following classifications:)

Bellor and Tank Work.

Castings.

Forgings.

Foundries and Machine Shops.

Machinery (Special).

Ornamental Iron Work.

Patterns.

Sheet Metal Work.

Structural Steel and Iron.

Welding Plants.

CONVEYING AND ELEVATING

MACHINERY.

Barber-Greene Co., Aurora, Ill.

Chain Belt Co., Milwaukee, Wis.

Universal Crusher Co., Cedar Rapids, Ia.

Webster & Weller Mfg. Co., Chicago.

CONVEYORS (Portable, Power-

Driven.)

Clark Tractor Co., Battle Creek, Mich.

CORNER BEAD.

Mileor Steel Company, Milwaukee, Wis.

COST SERVICE.

Le Baron, E. T., Jacksonville, Fla.

COTTON GIN MACHINERY.

Continental Gin Co., Birmingham, Ala.

COUNTING APPARATUS.

Veeder-Root, Inc., Hartford, Conn.

COUPLINGS.

Goldens' Fdy. & Mch. Co., Columbus, Ga.

—(Flexible.)

Diamond Chain & Mfg. Co., Indianapolis, Ind.

—(Shaft.)

Wood's Sons Co., T. B., Chambersburg, Pa.

CRANES

Industrial Brownhoist Corp., Cleveland, O.
National Equipment Co. (Insley, Koehring, Parsons), Milwaukee, Wis.
Northwest Engineering Co., Chicago, Ill.
Ohio Power Shovel Co., Lima, Ohio.
Thew Shovel Co., The, Lorain, Ohio.

—(Cantilever, Gantry.)

Bedford Foundry & Machine Co., Bedford, Ind.

—(Crawler.)

Harnischfeger Corp., Milwaukee, Wis.
Industrial Brownhoist Corp., Cleveland, O.
Northwest Engineering Co., Chicago, Ill.
Ohio Power Shovel Co., Lima, Ohio.
Thew Shovel Co., The, Lorain, Ohio.

—(Crawling Tractor.)

Northwest Engineering Co., Chicago, Ill.
Ohio Power Shovel Co., Lima, Ohio.
Thew Shovel Co., The, Lorain, Ohio.

—(Electric Travelling.)

Bedford Foundry & Machine Co., Bedford, Ind.

Harnischfeger Corp., Milwaukee, Wis.

Milwaukee Elec. Crane & Hoist Corp., Milwaukee, Wis.

—(Full Circle Steam and Electric.)

Northwest Engineering Co., Chicago, Ill.

Ohio Power Shovel Co., Lima, Ohio.

Thew Shovel Co., The, Lorain, Ohio.

—(Gasoline.)

Buckeye Traction Ditcher Co., Findlay, Ohio.

Harnischfeger Corp., Milwaukee, Wis.

Northwest Engineering Co., Chicago, Ill.

Ohio Power Shovel Co., Lima, Ohio.

Thew Shovel Co., The, Lorain, Ohio.

—(Locomotive.)

Bucyrus-Erie Co., Erie, Penna.

Northwest Engineering Co., Chicago, Ill.

Ohio Power Shovel Co., Lima, Ohio.

Thew Shovel Co., The, Lorain, Ohio.

—(Material Handling.)

Bay City Shovels, Inc., Bay City, Mich.

Industrial Brownhoist Corp., Cleveland, O.

Northwest Engineering Co., Chicago, Ill.

Ohio Power Shovel Co., Lima, Ohio.

Thew Shovel Co., The, Lorain, Ohio.

Universal Crane Co., Lorain, Ohio.

—(Traveling Hand Power.)

International Derrick & Equipment Co., Columbus, Ohio.

Wright Mfg. Co., Lisbon, Ohio.

CRAWLERS (Tractor.)

Trackson Co., Milwaukee, Wis.

CREOSOTED MATERIALS.

Amer. Creosote Wks., Inc., New Orleans.

Delaware Wood Preserving Co., Phila.

Savannah Creosoting Co., Savannah, Ga.

CREOSOTED TIMBER.

Ayer & Lord Tie Co., Chicago, Ill.

Brown Wood Preserving Co., Louisville, Ky.

CREOSOTE OIL.

Amer. Creosote Wks., Inc., New Orleans.

Ayer & Lord Tie Co., Inc., Chicago.

CREOSOTING (Wood Materials.)

Amer. Creosote Wks., Inc., New Orleans.

Amer. Creosoting Co., Inc., Louisville, Ky.

Brown Wood Preserving Co., Louisville, Ky.

Carolina Wood Preserving Co., Charleston, S. C.

Delaware Wood Preserving Co., Phila.

Eppinger & Russell Co., New York, N. Y.

Gulf States Creos. Co., Hattiesburg, Miss.

Savannah Creosoting Co., Savannah, Ga.

Wales Wood-Preserving Co., Norfolk, Va.

CROSS-ARMS (Creosoted.)

Amer. Creosote Wks., Inc., New Orleans.

Amer. Creosoting Co., Inc., Louisville, Ky.

Ayer & Lord Tie Co., Inc., Chicago.

Carolina Wood Preserving Co., Charleston, S. C.

Eppinger & Russell Co., New York, N. Y.

Savannah Creosoting Co., Savannah, Ga.

—(Zinc Meta Arsenite Treated.)

Curtin-Howe Corp., New York, N. Y.

CROSS-TIES (Creosoted.)

Amer. Creosote Wks., Inc., New Orleans.

Amer. Creosoting Co., Inc., Louisville, Ky.

Ayer & Lord Tie Co., Inc., Chicago.

Carolina Wood Preserving Co., Charleston, S. C.

Eppinger & Russell Co., New York, N. Y.

Savannah Creosoting Co., Savannah, Ga.

—(Zinc Meta Arsenite Treated.)

Curtin-Howe Corp., New York, N. Y.

CRUSHED STONE (Road Con-

crete and Ballast.)

American Limestone Co., Knoxville, Tenn.

Boxley & Co., W. W., Roanoke, Va.

CRUSHERS (Coal and Coke).

Fuller Lehigh Co., Fullerton, Pa.

—(Rock.)

Diamond Iron Works, Minneapolis, Minn.

Universal Crusher Co., Cedar Rapids, Ia.

CRUSHING and Pulverizing Ma-

chinery.

Allis-Chalmers Mfg. Co., Milwaukee, Wis.

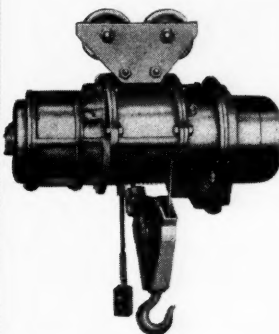
Day Pulverizer Co., Knoxville, Tenn.

Diamond Iron Works, Minneapolis, Minn.

Fuller Lehigh Co., Fullerton, Pa.

WRIGHT

ELECTRIC HOISTS



ANNOUNCING . . . A COMPLETE LINE OF WRIGHT ELECTRIC HOISTS

We have been working toward this announcement for many months. Now it can be told. We have ready for your approval a complete line of Electric Hoists and Motor-driven Trolleys. We believe it to be a superior line. A line worthy of the name Wright . . . Like the Wright High Speed Hoist, the Wright Electric Hoist has 21 points of superiority. Furnished with low headroom mounting if headroom is limited.

OTHER WRIGHT PRODUCTS

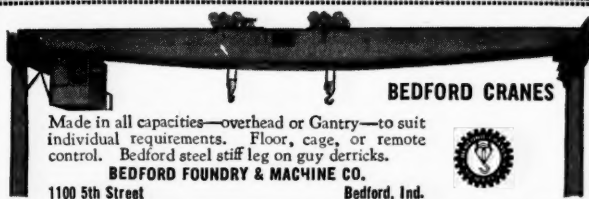
High Speed Chain Hoists
Standard Screw Hoists
Differential Hoists
Army Type and 600 Type Low
Headroom Trolley Hoists
Timken Roller Bearing
Trolleys
Hand Traveling Cranes
Jib Cranes, Etc.

Send for Electric Hoist
Catalog

WRIGHT MANUFACTURING COMPANY

BRIDGEPORT, CONNECTICUT

An Associate Company of the American Chain Company, Inc.



BEDFORD CRANES

Made in all capacities—overhead or Gantry—to suit individual requirements. Floor, cage, or remote control. Bedford steel stiff leg on guy derricks.

BEDFORD FOUNDRY & MACHINE CO.
1100 5th Street Bedford, Ind.



P&H

Traveling
Cranes and Hoists

Harnischfeger

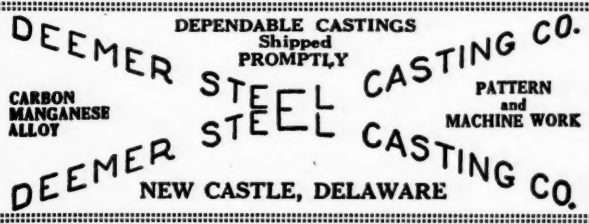
Corporation

Established 1884

Crane and Hoist Division

4427 W. National Ave.

Milwaukee, Wis.



ELECTRIC STEEL CASTINGS

Weighing from 1 lb. to 500 lbs. each

Quantity Production A Specialty

Quick Delivery

Nickel, Chrome and Other Alloy

Inquiries Solicited

CRUCIBLE STEEL CASTING COMPANY

LANSDOWNE, DELAWARE COUNTY, PA.



Wilson

ROLLING STEEL DOORS

*Have Stood the
Test of Time*

FOR 50 Years Wilson Rolling Steel Doors have given protection against Fire, Theft, and the Elements. Operated by hand, motor or gearing.

Lowest Maintenance

Write for Catalog No. 8.

THE J. G. WILSON CORPORATION
11 East 38th St., New York City
Offices in all Principal Cities
Established 1876

ALLIS-CHALMERS MFG. CO.
MILWAUKEE, WIS., U. S. A.
DESIGNERS AND BUILDERS OF
Steam Turbines, Electrical Machinery, Steam, Gas
and Oil Engines, Centrifugal Pumps, Crushing
& Cement Machinery, Etc.

SCHOOL DESKS
St. Andrew's
CHICAGO
107 So. Wabash Avenue

AMERICAN ELEVATORS
PASSENGER AND FREIGHT
**AMERICAN
ELEVATOR and MACHINE CO., INC.**
Established in 1898
LOUISVILLE, KENTUCKY

**FIRE CLAY, SEWER PIPE, FLUE
LINERS and WALL COPING**
Write for Catalogue and Discounts
Owensboro Sewer Pipe Co. Owensboro, Ky.

Raymond Bros. Impact Pulverizer Co.,
Chicago, Ill.
Traylor Engr. & Mfg. Co., Allentown, Pa.
Universal Crusher Co., Cedar Rapids, Ia.
W-K-M Co., Inc., Houston, Texas.

CULVERT PIPE (Cast Iron.)
Amer. Cast Iron Pipe Co., Birmingham.
Cast Iron Pipe Research Assn., Chicago.
U. S. Pipe & Foundry Co., Burlington, N.J.

—(Corrugated Metal.)
American Sheet & Tin Plate Co., Pitts-
burgh, Pa.
Armco Culvert Mfrs. Assn., Middletown, O.
Dixie Culvert & Metal Co., Atlanta, Ga.
Dixie Culvert Mfg. Co., Little Rock, Ark.
Louisiana Corr. Culvert Co., Baton Rouge,
La.
Tenn. Metal Culvert Co., Nashville, Tenn.
Western Metal Mfg. Co., Houston, Texas.

**CURB PROTECTORS. (Steel
Bar.)**
Truscon Steel Co., Youngstown, Ohio.

CUTTERS (Wire Rope.)
Leschen & Sons Rope Co., A., St. Louis.

**CYLINDERS (Compressed Air,
Gas.)**
National Tube Co., Pittsburgh, Pa.

DAMP-PROOFING.
Headley Emulsified Products Co., Phila-
delphia, Pa.

**DERRICKS (Oil and Water
Well.)**
International Derrick & Equipment Co.,
Columbus, Ohio.

**DERRICKS and Derrick Fit-
tings.**
Clyde Iron Works Sales Co., Duluth, Minn.
Lidgerwood Mfg. Co., Elizabeth, N. J.
Saugen Derrick Co., Chicago, Ill.

DESKS (School.)
Andrews Co., A. H., Chicago, Ill.

DITCHING MACHINERY.
Barber-Greene Co., Aurora, Ill.
Bay City Shovels, Inc., Bay City, Mich.
Buckeye Traction Ditcher Co., Findlay,
Ohio.
Harnischfeger Corp., Milwaukee, Wis.
Hayward Co., The, New York, N. Y.
Industrial Brownhoist Corp., Cleveland, O.
Northwest Engineering Co., Chicago, Ill.
Ohio Power Shovel Co., Lima, Ohio.
Owen Bucket Co., The, Cleveland, O.

DOORS (Bronze.)
Michaels Art Bronze Co., Covington, Ky.

—(Fire.)
Merchant & Evans Co., Philadelphia, Pa.
—(Fireproof, Air Chamber.)
Wilson Corp., The J. G., New York.

—(Rolling, Steel and Wood.)
Kinneer Mfg. Co., The, Columbus, Ohio.
Wilson Corp., The J. G., New York.

—(Steel.)
Truscon Steel Co., Youngstown, Ohio.

—(Tubular Steel.)
Baylor Co., Wm., Springfield, O.

—(Vault.)
York Safe & Lock Co., York, Penna.

DRAFTSMEN'S SUPPLIES.
Weber Co., Inc., F., Philadelphia, Pa.

DRAGLINE EXCAVATORS.
Bucyrus-Erie Co., Erie, Penna.
Harnischfeger Corp., Milwaukee, Wis.
Monaghan Mfg. Corp., Chicago, Ill.
National Equipment Corp. (Kochring, In-
sley) Milwaukee, Wis.
Northwest Engineering Co., Chicago, Ill.
Ohio Power Shovel Co., Lima, Ohio.
Sauerman Bros., Chicago, Ill.
Thew Shovel Co., The, Lorain, Ohio.
Universal Power Shovel Co., Milwaukee,
Wis.

—(Walking.)
Monaghan Mfg. Corp., Chicago, Ill.

**DREDGES (Dipper, Elevator,
Hydraulic.)**
Bay City Shovels, Inc., Bay City, Mich.
Bucyrus-Erie Co., Erie, Pa.

**DREDGING (River and Harbor
Improvement.)**
Arundel Corp., The, Baltimore, Md.
Atlantic Gulf and Pacific Co., New York.

—Machinery.
Hayward Co., The, New York.

DRILLING CONTRACTORS.
Kennedy-Riegger Drilling Co., New York
City.
Mott Core Drilling Co., Huntington, W. Va.

Myers & Sons, J. L., Decatur, Texas.
Pennsylvania Drilling Co., Pittsburgh, Pa.
Southern Drilling Co., Saltville, Va.
Sprague & Henwood, Inc., Scranton, Pa.

DRILLS (Oil and Artesian Well)
International Derrick & Equipment Co.,
Columbus, Ohio.
Virginia Machinery & Well Co., Inc.,
Richmond, Va.

—Hand
Gardner-Denver Co., Quincy, Ill.

—(Electric.)
Gardner-Denver Co., Quincy, Ill.
Sullivan Mch. Co., Chicago.

—(Pneumatic.)
Gardner-Denver Co., Quincy, Ill.
Ingersoll-Rand Co., New York, N. Y.
Sullivan Machinery Co., Chicago, Ill.

DRINKING FOUNTAINS.
Bundis-Spence Mfg. Co., Milwaukee, Wis.

DROP-FORGING MACHINERY.
Bliss Co., E. W., Brooklyn, N. Y.

DRYERS (Gravel and Sand.)
Ripley Fdy. & Mch. Co., Ripley, Ohio.

DRY KILNS and Equipment.
Moore Dry Kiln Co., Jacksonville, Fla.

DRYING MACHINERY.
American Process Co., New York, N. Y.
Chicago Bridge & Iron Works, Chicago, Ill.

**DUMP TRUCK BODIES and
HOISTS.**
Easton Car & Construction Co., Easton, Pa.

DUST-PROOFING (Concrete.)
Sonnenborn Sons, Inc., L., New York.

DYESTUFFS.
Du Pont de Nemours & Co., Inc., E. I.,
Wilmington, Del.

**DYNAMITE (Industrial and Ag-
ricultural.)**
Du Pont de Nemours & Co., Inc., E. I.,
Wilmington, Del.

ECONOMIZERS (Fuel.)
Babcock & Wilcox Co., New York.

**ELECTRICAL Instruments and
Supplies.**
Adam Electric Co., Frank, St. Louis.
General Electric Co., Schenectady, N. Y.
Western Electric Co., New York City.

—Machinery (Generators, Mo-
tors, etc., New.)
Allis-Chalmers Mfg. Co., Milwaukee, Wis.
Century Electric Co., St. Louis, Mo.
Fairbanks, Morse & Co., Chicago, Ill.
General Electric Co., Schenectady, N. Y.
Rockford Power Machy. Co., Rockford, Ill.
Westinghouse Electric & Mfg. Co., E.
Pittsburgh, Pa.

—Machinery (Generators, Mo-
tors, etc., Used.)
Delta Equipment Co., Philadelphia, Pa.
Electric Service Co., Cincinnati, Ohio.
General Electric Co., Schenectady, N. Y.
Gregory Electric Co., Chicago.
Nussbaum & Co., V. M., Ft. Wayne, Ind.
O'Brien Machinery Co., The, Phila., Pa.
Randle Machinery Co., The, Cincinnati, O.
Rockford Power Machy. Co., Rockford, Ill.

—Machinery Repairing (Mo-
tors, Generators, etc.)
Electric Service Co., Cincinnati, Ohio.
Gregory Electric Co., Chicago.

ELECTRIC LIGHTING.
General Electric Vapor Lamp Co.,
Hoboken, N. J.

**ELECTRIC SHOVELS (See
Shovels.)**

ELEVATOR Cables.
Leschen & Sons Rope Co., A., St. Louis.

ELEVATORS (Electric.)
American Elevator & Machine Co., Inc.,
Louisville, Ky.
Millner Co., St. Louis, Mo.

—(Hand and Belt Power.)
American Elevator & Machine Co., Inc.,
Louisville, Ky.
Millner Co., St. Louis, Mo.

—(Hydraulic.)
American Elevator & Machine Co., Inc.,
Louisville, Ky.

ENGINEERS (Airports.)

International Derrick & Equipment Co., Columbus, Ohio.
MacElwee & Crandall, Inc., Cambridge, Mass.
Shaw Co., Russell B., St. Louis, Mo.

—(Appraisal.)

Fay, Spofford & Thorndike, Boston, Mass.
Ford, Bacon & Davis, Inc., New York.
Lockwood Greene Engrs., Inc., New York.
Main, Inc., Chas. T., Boston, Mass.
Pender, W. R., Houston, Texas.
Sanderson & Porter, New York, N. Y.
Wadleigh & Bailey, Washington, D. C.
White Engineering Corp., J. G., New York.
Whitman, Requardt & Smith, Balto., Md.
Wiedeman and Singleton, Inc., Atlanta.

—(Aviation.)

Shaw Co., Russell B., St. Louis, Mo.

—(Bridge.)

Atlantic Bridge Co., Greensboro, N. C.
Billingsley, James W., New Orleans, La.
Fay, Spofford & Thorndike, Boston, Mass.
Freeland, Roberts & Co., Nashville, Tenn.
Gardner & Howe, Memphis, Tenn.
Greiner & Co., J. E., Baltimore, Md.
Hardaway Contracting Co., Columbus, Ga.
Hedrick, Inc., Ira G., Hot Springs, Nat'l Park, Ark.
Howerton Engineering Co., Asheville, N.C.
Southern Erectors, Inc., Tampa, Fla.
Steel & Leiby, Knoxville, Tenn.
Turner, C. A. P., Minneapolis, Minn.
Virginia Bridge & Iron Co., Roanoke, Va.
Wheeler, Walter H., Minneapolis, Minn.
Whitman, Requardt & Smith, Balto., Md.

—(Chemical.)

Barrow-Agee Laboratories, Memphis, Tenn.
Dow & Smith, New York, N. Y.
Flood & Co., Walter H., Chicago, Ill.
Moss, Jr., W. Wade, Columbus, Ga.
Pittsburgh Testing Laboratories, Pittsburgh, Pa.
Southern Products Corp., New Orleans.

—(Civil.)

Airmap Corp. of Amer., Brooklyn, N. Y.
Charlton & Davis, Ft. Lauderdale, Fla.
Fuller & McClintock, New York, N. Y.
Gardner & Howe, Memphis, Tenn.
Greiner & Co., J. E., Baltimore, Md.
Harrub Engr. Co., C. N., Nashville, Tenn.
Hedrick, Inc., Ira G., Hot Springs, Nat'l Park, Ark.
Hills Co., George B., Jacksonville, Fla.
MacElwee & Crandall, Inc., Cambridge, Mass.
Main, Inc., Chas. T., Boston, Mass.
Spoon & Lewis, Greensboro, N. C.
Steel & Leiby, Knoxville, Tenn.
White Engineering Corp., J. G., New York.
Whitman, Requardt & Smith, Balto., Md.

—(Consulting.)

Airmap Corp. of Amer., Brooklyn, N. Y.
Charlton & Davis, Ft. Lauderdale, Fla.
Converse & Co., J. B., Mobile, Ala.
Cramer, Robert, Milwaukee, Wis.
Engineering Service Corp., Houston, Tex.
Harza Engineering Co., Chicago.
Hedrick, Inc., Ira G., Hot Springs, Nat'l Park, Ark.
Lockwood Greene Engrs., Inc., New York.
Main, Inc., Chas. T., Boston, Mass.
Pender, W. R., Houston, Texas.
Smith, Elroy G., Augusta, Ga.
Stillman & Van Sien, New York, N. Y.
Wadleigh & Bailey, Washington, D. C.
White Engineering Corp., J. G., New York.
Whitman, Requardt & Smith, Balto., Md.
Wiedeman & Singleton, Inc., Atlanta, Ga.

—(Dams.)

Alpaugh & Sons, Chas. W., Manassas, Va.
Byllesby Engineering and Management Corp., Chicago, Ill.
Gardner & Howe, Memphis, Tenn.
Hardaway Contracting Co., Columbus, Ga.
Harza Engineering Co., Chicago.
Hedrick, Inc., Ira G., Hot Springs, Nat'l Park, Ark.
Lee, William S., Charlotte, N. C.
Main, Inc., Chas. T., Boston, Mass.
Sririne & Co., J. E., Greenville, S. C.
Tucker & Laxton, Charlotte, N. C.
Wheeler, Walter H., Minneapolis, Minn.
White Engineering Corp., J. G., New York.

—(Drainage and Irrigation.)

Cramer, Robert, Milwaukee, Wis.
Ford, Bacon & Davis, Inc., New York.
Fuller & McClintock, New York, N. Y.
Hills Co., George B., Jacksonville, Fla.
Huey, S. E., Monroe, La.

—(Efficiency.)

Ernst & Ernst, New York, N. Y.
Whitman, Requardt & Smith, Balto., Md.

—(Electrical.)

Engineering Service Corp., Houston, Tex.
Hoosier Engineering Co., Chicago, Ill.
Lee, William S., Charlotte, N. C.
Lockwood Greene Engrs., Inc., New York.
Main, Inc., Chas. T., Boston, Mass.
Mullergren, Arthur L., Kansas City, Mo.
Sanderson & Porter, New York, N. Y.
Tucker & Laxton, Charlotte, N. C.
Webb Electric Co., Anderson, S. C.
White Co., Gilbert C., Durham, N. C.
Wiley & Wilson, Lynchburg, Va.

—(Electric-Light and Power Plants.)

Byllesby Engineering and Management Corp., Chicago, Ill.
Cramer, Robert, Milwaukee, Wis.
Ford, Bacon & Davis, Inc., New York.
Lee, William S., Charlotte, N. C.

Main, Inc., Chas. T., Boston, Mass.
Mullergren, Arthur L., Kansas City, Mo.
Sanderson & Porter, New York, N. Y.
Tucker & Laxton, Charlotte, N. C.
White Engineering Corp., J. G., New York.
White Co., Gilbert C., Durham, N. C.

—(Flood Control.)

Harza Engineering Co., Chicago.

—(Forest.)

Lacey & Co., Jas. D., New York, N. Y.

—(Gas.)

Byllesby Engineering and Management Corp., Chicago, Ill.
Ford, Bacon & Davis, Inc., New York.
Huey, S. E., Monroe, La.

—(Geological.)

De Kalb, Courtenay, New York City.
Froehling & Robertson, Richmond, Va.
Moss, Jr., W. Wade, Columbus, Ga.
Wadleigh & Bailey, Washington, D. C.
Withers, R. S., Jackson, Miss.

—(Harbor Improvements.)

Billingsley, James W., New Orleans, La.
Engineering Service Corp., Houston, Tex.
Fay, Spofford & Thorndike, Boston, Mass.

—(Heating.)

Pender, W. R., Houston, Texas.
Wiley & Wilson, Lynchburg, Va.

—(Hydraulic.)

Alpaugh & Sons, Chas. W., Manassas, Va.
Fuller & McClintock, New York, N. Y.
Harza Engineering Co., Chicago.
Main, Inc., Chas. T., Boston, Mass.
Whitman, Requardt & Smith, Balto., Md.

—(Hydro-electric.)

Alpaugh & Sons, Chas. W., Manassas, Va.
Byllesby Engineering and Management Corp., Chicago, Ill.
Harza Engineering Co., Chicago.
Lee, William S., Charlotte, N. C.
Main, Inc., Chas. T., Boston, Mass.
Mees & Mees, Charlotte, N. C.
Sanderson & Porter, New York, N. Y.
Sririne & Co., J. E., Greenville, S. C.
Tucker & Laxton, Charlotte, N. C.
White Engineering Corp., J. G., New York.
Whitman, Requardt & Smith, Balto., Md.

—(Ice and Refrigerating.)

Engineering Service Corp., Houston, Tex.

—(Industrial Plants.)

Billingsley, James W., New Orleans, La.
Charleston Constructors, Inc., Charleston, S. C.
Consoer, Older & Quinlan, Inc., Chicago.
Converse & Co., J. B., Mobile, Ala.
Fay, Spofford & Thorndike, Boston, Mass.
Gardner & Howe, Memphis, Tenn.
Greiner & Co., J. E., Baltimore, Md.
Hills Co., George B., Jacksonville, Fla.
International Derrick & Equipment Co., Columbus, Ohio.
Lockwood Greene Engrs., Inc., New York.
MacElwee & Crandall, Inc., Cambridge, Mass.
Main, Inc., Chas. T., Boston, Mass.
Mees & Mees, Charlotte, N. C.
Mullergren, Arthur L., Kansas City, Mo.
Preacher & Co., Inc., G. Lloyd, Atlanta.
Sanderson & Porter, New York, N. Y.
Sririne & Co., J. E., Greenville, S. C.
Smith, Elroy G., Augusta, Ga.
Turner, C. A. P., Minneapolis, Minn.
Widmer Engineering Co., St. Louis, Mo.

—(Industrial Survey.)

Converse & Co., J. B., Mobile, Ala.
Lockwood Greene Engrs., Inc., New York.
Wadleigh & Bailey, Washington, D. C.

—(Inspection and Tests.)

Barrow-Agee Laboratories, Memphis, Tenn.
Conard, William R., Burlington, N. J.
Cramer, Robert, Milwaukee, Wis.
Dow & Smith, New York, N. Y.
Flood & Co., Walter H., Chicago, Ill.
Froehling & Robertson, Inc., Richmond, Va.
Hunt Co., Robert W., Chicago, Ill.
Moss, Jr., W. Wade, Columbus, Ga.
Pender, W. R., Houston, Texas.
Pittsburgh Testing Laboratories, Pittsburgh, Pa.
Southwestern Laboratories, Ft. Worth, Tex.

—(Lighting.)

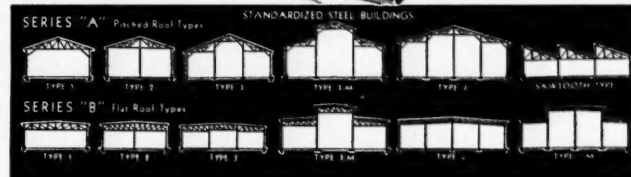
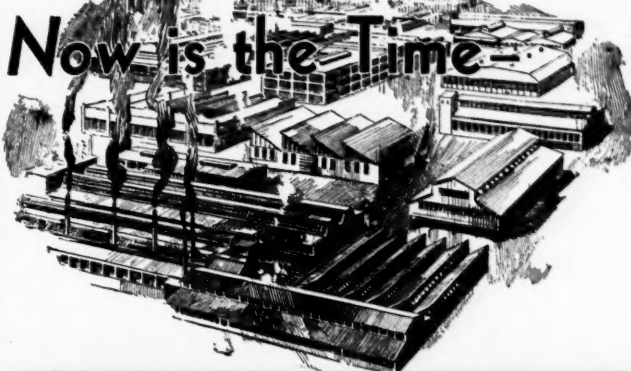
Byllesby Engineering and Management Corp., Chicago, Ill.
Ford, Bacon & Davis, Inc., New York.
General Electric Vapor Lamp Co., Hoboken, N. J.
Wiley & Wilson, Lynchburg, Va.

—(Mechanical.)

Charlton & Davis, Ft. Lauderdale, Fla.
Engineering Service Corp., Houston, Tex.
Lee, William S., Charlotte, N. C.
Lockwood Greene Engrs., Inc., New York.
Main, Inc., Chas. T., Boston, Mass.
Mees & Mees, Charlotte, N. C.
Meigs, Bassett & Slaughter, Phila., Pa.
Pender, W. R., Houston, Texas.
Sanderson & Porter, New York, N. Y.
Wiley & Wilson, Lynchburg, Va.

—(Mining. See Engineers, Geological.)**—(Municipal.)**

Billingsley, James W., New Orleans, La.
Consoer, Older & Quinlan, Inc., Chicago.
Dow & Smith, New York, N. Y.



—To Expand With TRUSCON BUILDINGS



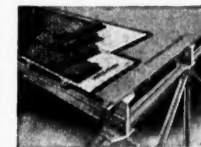
STEEL WINDOWS



STEEL DOORS



CHANNEL PLATE FLOORS



STEEL DECK ROOFS

Truscon offers quality buildings of standardized units to meet exactly your individual requirements. All types and sizes are available, including flat, pitched, monitor or sawtooth roofs. Fireproof materials are used throughout; Steel Windows, Steel Doors, and Insulated Steeldeck Roofs. Write for suggestions, catalog and prices.

—to Modernize With TRUSCON PRODUCTS

Old buildings can be made efficient by installing modern features. Increased daylighting can be obtained through steel windows. Insulated and fireproof Steeldeck roofs can be erected on old trusses in place of wood roofs. Steel doors will give dependable operation and permanent protection. Truscon furnishes all types of steel products for either new construction or replacement work. Complete information furnished without obligation.

TRUSCON STEEL COMPANY

Youngstown, Ohio

Truscon Steel Company of Canada, Limited, Walkerville, Ontario
Warehouses and Offices in Principal Cities

TRUSCON

Goldens' Foundry & Machine Co.

COLUMBUS, GEORGIA

MANUFACTURERS OF

MACHINE MOULDED PULLEYS HANGERS SHAFTING

Couplings, Pillow Blocks, Floor Stands, Collars, etc.

Send for Price List and Discount Sheet

For 36 Years } **HILL** { has meant highest reputation in Foundry Supplies

Facings, Plumbago, Core Compound,
Parting and Every Foundry Requirement

Write for prices

THE HILL & GRIFFITH CO.

Factories and Offices:
CINCINNATI, OHIO
BIRMINGHAM, ALA.

Warehouse:
CHICAGO, ILL.

Water Purification Plants

Any Type—Any Purpose—Any Capacity

Dry Chemical Feed Machines
Swimming Pool Filters

E. W. BACHARACH & CO.
Rialto Bldg. Kansas City, Mo.

WATER PURIFICATION of every type **EQUIPMENT** for every purpose

INTERNATIONAL FILTER CO.
WORKS AND GENERAL OFFICE
333 WEST 25th PLACE
CHICAGO
NEW YORK PITTSBURGH SAN FRANCISCO LOS ANGELES
CANADIAN INTERNATIONAL FILTER CO., LTD., TORONTO

WATER FILTERS

Pressure and Gravity type for Municipal Water Supplies,
Rayon Manufacturing Plants, Textile Finishing Estab-
lishments, Raw Water Ice Plants, Laundries, Etc.

ROBERTS FILTER MANUFACTURING COMPANY
604 Columbia Avenue Darby, Pennsylvania

WATER

FILTRATION PURIFICATION SOFTENING

Internal and External Feed Water Conditioning
Southern Products Corporation, Inc.

Chem. and Mech. Engineers

Dallas NEW ORLEANS Jacksonville

Harrub Engr. Co., C. N., Nashville, Tenn.
Hills Co., George B., Jacksonville, Fla.
Howerton Engineering Co., Asheville, N.C.
Huey, S. E., Monroe, La.
Knowles, Inc., Morris, Pittsburgh, Pa.
McCrary Co., The, J. B., Atlanta, Ga.
Spoon & Lewis, Greensboro, N. C.
White Co., Gilbert C., Durham, N. C.

—(Paving and Roads.)

Billingsley, James W., New Orleans, La.
Dow & Smith, New York, N. Y.
Freeland, Roberts & Co., Nashville, Tenn.
Harrub Engr. Co., C. N., Nashville, Tenn.
Howerton Engineering Co., Asheville, N.C.
Spoon & Lewis, Greensboro, N. C.
White Co., Gilbert C., Durham, N. C.

—(Public Service Properties.)

Bylesby Engineering & Management
Corp., Chicago, Ill.
Ford, Bacon & Davis, Inc., New York
Fuller & McClintock, New York, N. Y.
Knowles, Inc., Morris, Pittsburgh, Pa.
Main, Inc., Chas. T., Boston, Mass.
Pender, W. R., Houston, Texas.
Sanderson & Porter, New York, N. Y.
White Engineering Corp., J. G., New York.

—(Railroad.)

Huey, S. E., Monroe, La.
Mees & Mees, Charlotte, N. C.

—(Reinforced Concrete Bridges, Buildings, etc.)

Atlantic Bridge Co., Greensboro, N. C.
Fay, Spofford & Thorndike, Boston, Mass.
Freeland, Roberts & Co., Nashville, Tenn.
Gardner & Howe, Memphis, Tenn.
Greiner & Co., J. E., Baltimore, Md.
Lockwood Greene Engrs., Inc., New York
Main, Inc., Chas. T., Boston, Mass.
Steel & Leiby, Knoxville, Tenn.
Tucker & Laxton, Charlotte, N. C.
Turner, C. A. P., Minneapolis, Minn.
Wheeler, Walter H., Minneapolis, Minn.

—(Sanitary.)

Cramer, Robert, Milwaukee, Wis.
Harza Engineering Co., Chicago.
Whitman, Requaardt & Smith, Balto., Md.

—(Sewage Disposal Plants.)

Cramer, Robert, Milwaukee, Wis.
Fuller & McClintock, New York, N. Y.
McCrary Co., The, J. B., Atlanta, Ga.
Whitman, Requaardt & Smith, Balto., Md.
Wiedeman and Singleton, Inc., Atlanta.

—(Sewerage and Waterworks.)

Conard, William B., Burlington, N. J.
Consoer, Older & Quinlan, Inc., Chicago.
Ford, Bacon & Davis, Inc., New York
Fuller & McClintock, New York, N. Y.
Hardaway & Conkling Co., Columbus, Ga.
Harrub Engr. Co., C. N., Nashville, Tenn.
Howerton Engineering Co., Asheville, N.C.
Knowles, Inc., Morris, Pittsburgh, Pa.
Mees & Mees, Charlotte, N. C.
Sanderson & Porter, New York, N. Y.
Spoon & Lewis, Greensboro, N. C.
Tucker & Laxton, Charlotte, N. C.
White Co., Gilbert C., Durham, N. C.
White Engineering Corp., J. G., New York
Whitman, Requaardt & Smith, Balto., Md.
Wiedeman & Singleton, Inc., Atlanta, Ga.

—(Structural.)

Freeland, Roberts & Co., Nashville, Tenn.
Hedrick, Inc., Ira G., Hot Springs Nat'l
Park, Ark.
Hills Company, Geo. B., Jacksonville, Fla.
Huey, S. E., Monroe, La.
Lockwood Greene Engrs., Inc., New York
Southern Erectors, Inc., Tampa, Fla.
Turner, C. A. P., Minneapolis, Minn.
Virginia Bridge & Iron Co., Roanoke, Va.
Whitman, Requaardt & Smith, Balto., Md.

—(Textile Mills.)

Lockwood Greene, Engrs., Inc., New York
Main, Inc., Chas. T., Boston, Mass.
Serrine & Co., J. E., Greenville, S. C.

—(Transmission Lines.)

Hoosier Engineering Co., Chicago, Ill.

—(Ventilating and Heating.)

Wiley & Wilson, Lynchburg, Va.

—(Water Supply.)

Whitman, Requaardt & Smith, Balto., Md.

ENGINES (Compressed Air.)

Dake Engine Co., Grand Haven, Mich.

—(Diesel Type.)

Fairbanks, Morse & Co., Chicago, Ill.

—(Gas and Gasoline.)

Novo Engine Co., Lansing, Mich.
Sterling Engine Co., Buffalo, N. Y.

—(Hoisting.)

Clyde Iron Works Sales Co., Duluth, Minn.

—(Marine.)

Fairbanks, Morse & Co., Chicago, Ill.

—(Oil.)

Ingersoll-Rand Co., New York, N. Y.
Continental Gln Co., Birmingham, Ala.

—(Steam.)

Allis-Chalmers Mfg. Co., Milwaukee, Wis.
Co. Mfg. Co., E. D., Newnan, Ga.
Lafol & Co., James, Springfield, O.
Lombard Iron Works & Supply Co., Au-
gusta, Ga.
Schodell's Sons Co., J. S., Macon, Ga.

ENVELOPES.

Young & Seldon Co., Baltimore, Md.

ESTIMATORS (Building & Con- struction.)

Martin, Joe B., Charlotte, N. C.

EXCAVATING MACHINERY.

Bay City Shovels, Inc., Bay City, Mich.
Bucyrus-Erie Co., Erie, Penna.
Clyde Iron Works Sales Co., Duluth, Minn.
Harnischfeger Corp., Milwaukee, Wis.
Hayward Co., The, New York, N. Y.
Industrial Brownhoist Corp., Cleveland.
Monaghan Mfg. Corp., Chicago, Ill.
National Equipment Corp. (Koehring,
Insley, Parsons), Milwaukee, Wis.
Northwest Engineering Co., Chicago, Ill.
Owen Bucket Co., The, Cleveland, Ohio.
Thew Shovel Co., The, Lorain, Ohio.
Universal Power Shovel Co., Milwaukee,
Wis.

EXCAVATORS (Clamshell and Orange Peel.)

Northwest Engineering Co., Chicago, Ill.
Ohio Power Shovel Co., Lima, Ohio.
Thew Shovel Co., Lorain, Ohio.

—(Dragline. See Dragline Ex- cavators.)

—(Trench.)

Barber-Greene Co., Aurora, Ill.
Bay City Shovels, Inc., Bay City, Mich.
Buckeye Traction Ditcher Co., Findlay,
Ohio.
Bucyrus-Erie Co., Erie, Penna.
Harnischfeger Corp., Milwaukee, Wis.
Hayward Co., The, New York, N. Y.
Monaghan Mfg. Corp., Chicago, Ill.
Ohio Power Shovel Co., Lima, Ohio.
Universal Power Shovel Co., Milwaukee,
Wis.

EXPANSION JOINTS (Road and Street.)

Carey Co., Philip, Lockland, Cincinnati,
Ohio.
Servicised Products Corp., Chicago, Ill.

EXPLOSIVES.

Du Pont de Nemours & Co., Inc., E. I.,
Wilmington, Del.

FACTORY Management Systems.

Ernst & Ernst, New York, N. Y.

FEED-WATER HEATERS and Purifiers.

American Water Softener Co., Phila., Pa.

FENCE POSTS (Crossed.)

Ayer & Lord Tie Co., Chicago, Ill.

FENCING Entrance Gates (Iron, Steel and Wire.)

American Steel and Wire Co., Balto., Md.
Anchor Post Fence Co., Baltimore, Md.
Cyclone Fence Co., Waukegan, Ill.
Gulf States Steel Co., Birmingham, Ala.

—(Field and Industrial, Wire Woven.)

American Steel and Wire Co., Balto., Md.
Anchor Post Fence Co., Baltimore, Md.
Cyclone Fence Co., Waukegan, Ill.
Gulf States Steel Co., Birmingham, Ala.

FERTILIZER MACHINERY.

Raymond Bros., Impact Pulv. Co., Chicago.

FILTER (For Domestic and Industrial Purposes.)

American Water Softener Co., Phila., Pa.
Bacharach & Co., E. W., Kansas City,
Mo.
International Filter Co., Chicago, Ill.
Roberts Filter Mfg. Co., Darby (Phila.), Pa.
Sealife & Sons Co., Wm. B., Oakmont, Pa.

—Cloth.

Newark Wire Cloth Co., Newark, N. J.

FINANCING.

Akers, William, Atlanta, Ga.
Electric Bond & Share Co., New York.
Garraway & Co., S. G., Chicago.
Gay & Co., W. O., New York, N. Y.

FIRE CLAY.

North American Refractories Co., Cleve-
land, Ohio.

FIRE EXTINGUISHERS.

Myers & Bro. Co., The F. E., Ashland, O.

FIREPROOF Building Material.

Bannon Pipe Co., Louisville, Ky.

—Doors and Shutters.

Kinsler Mfg. Co., The, Columbus, Ohio.
Wilson Corp., The J. G., New York City.

FITTINGS (Wire Rope.)

Leechen & Sons Rope Co., A., St. Louis.
Roebeling's Sons Co., John A., Trenton, N. J.

FLANGES (Iron and Steel.)

Amer. Cast Iron Pipe Co., Birmingham.
Dart Mfg. Co., E. M., Providence, R. I.
Taylor Forge & Pipe Wks., Chicago, Ill.
U. S. Pipe & Foundry Co., Burlington, N. J.
Vogt Machine Co., Henry, Louisville, Ky.

—and Flanged Fittings.

Grinnell Co., Inc., Providence, R. I.

FLOOR (Asphalt Mastic.)

Barber Asphalt Co., Philadelphia, Pa.

—(Asphalt Plank.)

Servicised Products Corp., Chicago, Ill.

—(Cork Composition.)

Congoleum-Nairn, Inc., Kearny, N. J.

—(Hardwood, Maple, Oak.)

Kirby Lumber Co., Houston, Tex.
Nashville Hardwood Flooring Co., Nashville, Tenn.

—(Linoleum.)

Congoleum-Nairn, Inc., Kearny, N. J.

—(Northern Hard Maple.)

Holt Hardwood Co., Oconto, Wis.

—(Open Steel.)

Blaw-Knox Co., Pittsburgh, Pa.
Irving Iron Works Co., Long Is. City, N. Y.
Kerlow Steel Flooring Co., Jersey City, N. J.

—Covering.

Congoleum-Nairn, Inc., Kearny, N. J.

—Hardner (Concrete.)

Sonneborn Sons, Inc., L., New York.

—Plates and Stair Treads.

Central Iron & Steel Co., Harrisburg, Pa.
Ryerson & Son, Inc., Jos. T., St. Louis and New York.

—Steel (For Concrete Culverts, Roads, Streets.)

Blaw-Knox Co., Pittsburgh, Pa.

—Wax.

Congoleum-Nairn, Inc., Kearny, N. J.

FLUSH-TANK SIPHONS.

Pacific Flush-Tank Co., New York, N. Y.

FORGINGS (Drop.)

Vogt Machine Co., Henry, Louisville, Ky.

FORM CLAMPS.

M & M Clamp Co., Minneapolis, Minn.

FORMS, Steel (For Concrete Culverts, Roads, Streets, Curbs, Sidewalks, Tiles.)

Blaw-Knox Co., Pittsburgh, Pa.

FOUNDRIES and Machine Shops.

Deemer Steel Casting Co., New Castle, Del.
General Machine Works, York, Pa.
Glamorgan Pipe & Fdry. Co., Lynchburg, Va.
Goldens' Fdry. & Mch. Co., Columbus, Ga.
Lombard Iron Works & Supply Co., Augusta, Ga.
Mountain State Steel Foundries, Parkersburg, W. Va.
Richmond Foundry & Mfg. Co., Richmond, Va.

FOUNDRY Equipment and Supplies.

Chain Belt Co., Milwaukee, Wis.
Hill & Griffith Co., Cincinnati, O.

—Facing (Talc and Soapstone.)

Hill & Griffith Co., Cincinnati, O.

FURNACE LININGS.

North American Refractories Co., Cleveland, Ohio.

FURNACES (Industrial.)

Combustion Engr. Corp., New York City.

—(Water-Cooled.)

Combustion Engr. Corp., New York City.
Fuller Lehigh Co., Fullerton, Pa.

GALVANIZED Products.

Birmingham Galvanizing Co., Birmingham, Ala.
Cattle & Bros., Jos. P., Philadelphia, Pa.
International Derrick & Equipment Co., Columbus, Ohio.

—Steel and Iron.

American Rolling Mill Co., Middletown, O.
American Sheet & Tin Plate Co., Pittsburgh, Pa.
Granite City Steel Co., Granite City, Ill.
Republic Steel Corp., Youngstown, Ohio.

GALVANIZING (Cadmium Plating.)

Birmingham Galvanizing Co., Birmingham, Ala.

—(Hot Dip.)

Bessemer Galvanizing Works, Birmingham.
Birmingham Galvanizing Co., Birmingham, Ala.
Cattle & Bros., Jos. P., Philadelphia, Pa.
Newport News Shipbuilding & Drydock Co., Newport News, Va.

GARAGES (Metal.)

International Derrick & Equipment Co., Columbus, Ohio.

GAS HOLDERS.

Chattanooga Boiler & Tank Co., Chattanooga, Tenn.
Chicago Bridge & Iron Works, Atlanta, Ga.

—Producers.

Gas-O-Flame Stove Works, Port Deposit, Md.
Wood & Co., R. D., Philadelphia, Pa.

GASOLINE and KEROSENE.

Gulf Refining Co., Pittsburgh, Pa.

GASOLINE SHOVELS (See Shovels.)**GATES (Automatic Drainage.)**

Armed Culvert Mfrs. Assn., Middletown, O.
Dixie Culvert & Metal Co., Atlanta, Ga.
Dixie Culvert Mfg. Co., Little Rock, Ark.
Louisiana Corr. Culvert Co., Baton Rouge, La.
Tenn. Metal Culvert Co., Nashville, Tenn.
Western Metal Mfg. Co., Houston, Texas.

GEARS.

DeLaval Steam Turbine Co., Trenton, N. J.
Earle Gear & Machine Co., Phila., Pa.
General Electric Co., Schenectady, N. Y.
Woods' Sons Co., T. B., Chambersburg, Pa.

—(Worm Reduction.)

DeLaval Steam Turbine Co., Trenton, N. J.

GENERATORS, MOTORS (New.)

Century Electric Co., St. Louis, Mo.
General Electric Co., Schenectady, N. Y.
Westinghouse Elec. & Mfg. Co., E. Pittsburgh, Pa.

—(Used.)

Gregory Electric Co., Chicago.
O'Brien Machinery Co., Phila., Pa.
Randle Machinery Co., The, Cincinnati, O.

GEOLOGISTS. (See Engineers, Geological.)**GLASS (Art.)**

Hires Turner Glass Co., Philadelphia, Pa.

—(Plate.)

Blue Ridge Glass Corp., Kingsport, Tenn.
Hires Turner Glass Co., Philadelphia, Pa.
Southwestern Sheet Glass Co., Okmulgee, Okla.

—(Window.)

Blue Ridge Glass Corp., Kingsport, Tenn.
Hires Turner Glass Co., Philadelphia, Pa.
Southwestern Sheet Glass Co., Okmulgee, Okla.

—(Wire.)

Blue Ridge Glass Corp., Kingsport, Tenn.
Hires Turner Glass Co., Philadelphia, Pa.
Southwestern Sheet Glass Co., Okmulgee, Okla.

GRADERS (Elevating.)

Adams Co., J. D., Indianapolis, Ind.
Caterpillar Tractor Co., Peoria, Ill.

—(One Man Motor.)

Adams Co., J. D., Indianapolis, Ind.

—(Leaning Wheel Road.)

Adams Co., J. D., Indianapolis, Ind.

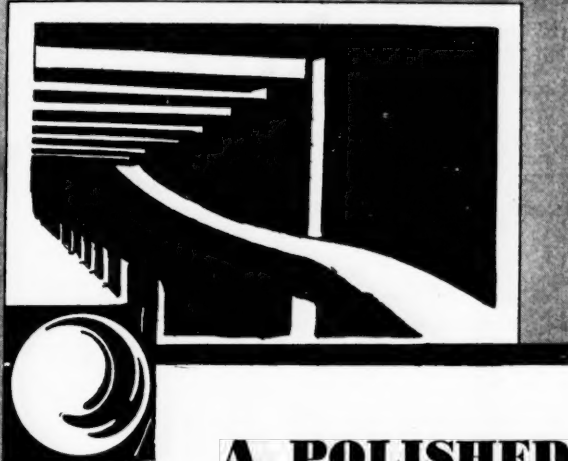
GRAPHITE.

Dixon Crucible Co., Jos., Jersey City, N. J.

GRATES and Grate Bars.

Schofield's Sons Co., J. S., Macon, Ga.
Vogt Machine Co., Henry, Louisville, Ky.

DIXON'S GRAPHITE CUP GREASE



A POLISHED BEARING MEANS COOL RUNNING

And nothing but graphite can put a graphite polish on a running bearing—in any service.

In Dixon's Graphite Cup Grease, flake graphite is combined with grease. Bearing surfaces not only run cool with this lubricant, but wear is resisted. Naturally bearing maintenance is reduced.

Due to the flake graphite, Dixon's Cup Grease has much greater efficiency and durability than plain cup greases. It is unaffected by conditions of heat, moisture and pressure where plain greases could not possibly prevent overheating and cutting.

Use Dixon's Graphite Cup Grease. While it is made in six degrees of hardness, No. 3 or 5 will probably solve your problem. We'll gladly advise.

Write for Circular No. 80-R

Other DIXON Products

Flake Graphite	Solid Belt
Graphite Seal	Dressing
Pipe Joint	Waterproof
Compound	Graphite Grease
Industrial (Silica-Graphite) Paint	

JOSEPH DIXON CRUCIBLE CO.

Established 1827

Jersey City



New Jersey

LONG LIFE POLES

of
**LONG
LEAF**
Yellow Pine



TRADE
MARK

SEASONED
According
to the Calendar

SHIPPED
According
to Your Specifications

*Adequate stocks for
Orders of any size*

SEND YOUR INQUIRIES TO

ROB'T W. FORBES **F. B. MERRITT**
Room 2845 Room 1560
Grand Central Terminal First National Bank Bldg.
New York City Detroit, Mich.

*Our Selling Agents
Or Direct to*

JACKSON LUMBER CO.

Manufacturers

Lockhart - - - Alabama

A Crossett Watzek Gates Industry

GRATING (Area, Flooring, Side-walk.)
Blaw-Knox Co., Pittsburgh, Pa.
Hendrick Mfg. Co., Carbondale, Pa.
Irving Iron Works, Long Is. City, N. Y.
Kerlow Steel Flooring Co., Jersey City, N.J.

GRAVEL (Roofing and Road.)
American Limestone Co., Knoxville, Tenn.
Arundel Corp., The, Baltimore, Md.
Borley & Co., W. W., Rosnoke, Va.
Friend & Co., Inc., Petersburg, Va.
Georgia Sand & Gravel Co., Augusta, Ga.

GREASE CUPS.
Lunkenheimer Co., The, Cincinnati, O.

GRILLES (Brass, Bronze, Steel, etc.)
Manhattan Perforated Metal Co., Inc.,
Long Island City, N. Y.

GRINDERS (Gypsum, Limestone, etc.)
Raymond Bros. Impact Pulv. Co., Chicago.

—Wheels.
Carborundum Co., Niagara Falls, N. Y.

GUARD RAIL (Road.)
National Traffic Guard Co., Atlanta.

GUNITE CONSTRUCTION.
Cement-Gun Co., Inc., Allentown, Pa.
Cement Gun Construction Co., Chicago.
Gunite Conc. & Constr. Co., Kansas City.
Gunite Constr. Co., New York City.
Rust Engineering Co., Birmingham, Ala.

GUNPOWDER.
Du Pont de Nemours & Co., Inc., E. I.,
Wilmington, Del.

GUNS (Hydraulic.)
Georgia Iron Works, Augusta, Ga.

HANGARS (Airplane.)
Blaw-Knox Co., Pittsburgh, Pa.
Ingalls Iron Works, Birmingham, Ala.
International Derrick & Equipment Co.,
Columbus, Ohio.

HANGERS (Line Shaft.)
American Pulley Co., Philadelphia, Pa.
Wood's Sons Co., T. B., Chambersburg, Pa.

HARBOR IMPROVEMENTS.
Arundel Corp., Baltimore, Md.
Atlantic, Gulf & Pacific Co., New York.

HEATERS (Asphalt.)
Honhorst Co., Jos., Cincinnati, O.

HEATING Apparatus (Engineers and Contractors.)
Grinnell Co., Inc., Providence, R. I.
Fox Piping & Heating Co., Greenville, S.C.

HOISTING MACHINERY.
Clyde Iron Works Sales Co., Duluth, Minn.
Lidgerwood Mfg. Co., Elizabeth, N. J.

HOISTS (Air Portable.)
Ingersoll-Rand Co., New York, N. Y.
Sullivan Machinery Co., Chicago, Ill.

—(Chain.)
Wright Mfg. Co., Lisbon, Ohio.

—(Electric.)
Clyde Iron Works Sales Co., Duluth, Minn.
Harnischfeger Corp., Milwaukee, Wis.
Milwaukee Elec. Crane & Hoist Corp.,
Milwaukee, Wis.
Novo Engine Co., Lansing, Mich.
Street Bros. Mch. Wks., Chattanooga, Tenn.

—(Gasoline.)
Clyde Iron Works Sales Co., Duluth, Minn.
Dake Engine Co., Grand Haven, Mich.
Equipment Corp. of America, Chicago, Ill.
National Equipment Corp. (C. H. & E.
Division), Milwaukee, Wis.
Novo Engine Co., Lansing, Mich.
Street Bros. Mch. Wks., Chattanooga, Tenn.

—(Steam.)
Clyde Iron Works Sales Co., Duluth, Minn.
Dake Engine Co., Grand Haven, Mich.
Street Bros. Mch. Wks., Chattanooga, Tenn.

HOOFS, Bands, etc. (Galvanized.)
Connors Steel Co., Birmingham, Ala.

HOPPERS (Aggregate, Measuring and Weighing.)
Blaw-Knox Co., Pittsburgh, Pa.
Butler Bin Co., Waukesha, Wis.

HOSE (Rubber.)
Republic Rubber Co., Youngstown, Ohio.

HOTELS.
Southern Hotel, The, Baltimore, Md.

HOUSE MOVING.
Eichleay, Jr., Co., John, Pittsburgh.

HUMIDIFYING AND DRYING EQUIPMENT.
Grinnell Co., Inc., Providence, R. I.

HYDRAULIC PRESSES (Car Wheels.)
Tomlin-Harris Machine Co., Cordale, Ga.

HYDRANTS (Fire.)
Ludlow Valve Mfg. Co., The, Troy, N. Y.
Myers & Bro. Co., The, F. E., Ashland, O.
Vogt, Brothers Mfg. Co., Louisville, Ky.
Wood & Co., B. D., Philadelphia, Pa.

HYDRO - ELECTRIC POWER COMPANIES (Offering Industrial and Commercial Opportunities.)
Alabama Power Co., Birmingham, Ala.
Georgia Power Co., Atlanta, Ga.
Texas Power & Light Co., Dallas, Texas.

ICE and Refrigerating Machinery and Supplies.
Ingersoll-Rand Co., New York, N. Y.
Vogt Mach. Co., Henry, Louisville, Ky.

INCORPORATORS.
Delaware Registration Trust Co., Wilmington, Del.

INJECTORS.
Randle Machinery Co., The, Cincinnati, O.

INSULATING (Board)
Armstrong Cork & Insulation Co., Lancaster, Pa.

—Materials.
General Electric Co., Schenectady, N. Y.
Okonite Co., New York, N. Y.

INVESTMENT SECURITIES.
Electric Bond & Share Co., New York.
Gay & Co., W. O., New York City.
Hanchett Bond Co., Inc., The, Chicago, Ill.
Mercantile Trust Co., Baltimore, Md.
Nuveen & Co., John, Chicago.
Provident Savings Bank & Trust Co.,
Cincinnati, Ohio.

IRON.
Tennessee Coal, Iron & Railroad Co., Birmingham, Ala.

—(Ingot, For Culverts, etc.)
American Rolling Mill Co., Middletown, O.

JANITOR SUPPLIES.
Clark, Lloyd T., Southern Pines, N. C.

JOINTS (Pipe.)
Leadite Co., The, Philadelphia, Pa.

KETTLES (Pavers and Roofers.)
Honhorst Co., Jos., Cincinnati, O.

LADDERS (Rolling.)
Myers & Bro. Co., The, F. E., Ashland, O.

—(Wooden.)
Patent Scaffolding Co., Chicago, Ill.

LAMPS (Incandescent.)
General Electric Vapor Lamp Co., Hoboken, N. J.
Western Electric Co., New York City.

LATH (Metal.)
Ingalls Iron Works Co., Birmingham, Ala.

LATHES.
Sebastian Lathe Co., Cincinnati, Ohio.

LIGHTING (Factory and Mill.)
General Electric Vapor Lamp Co., Hoboken, N. J.

—Fixtures (Electric.)
Western Electric Co., New York City.

LININGS (Flue, Fire Clay.)
Lee Clay Products Co., Clearfield, Ky.
North Amer. Refractories Co., Cleveland.
Owensboro Sewer Pipe Co., Owensboro, Ky.

—(Tube Mill.)
Fuller Lehigh Co., Fullerton, Pa.

LINOLEUM (Battleship, Embossed Inlaid, Inlaid, Jasper.)
Congoalum-Nairn, Inc., Kearny, N. J.

LITHOGRAPHERS and ENGRAVERS.
Smith & Son Co., Oscar T., Baltimore, Md.
Young & Selden Co., Baltimore, Md.

LOADING and UNLOADING MACHINERY (Portable.)
Barber-Greene Co., Aurora, Ill.
Northwest Engineering Co., Chicago, Ill.

LOCOMOTIVES (Compressed Air.)

Porter Co., H. K., Pittsburgh, Pa.

—(Fireless Stored Steam.)

Porter Co., H. K., Pittsburgh, Pa.

—(Gasoline.)

Porter Co., H. K., Pittsburgh, Pa.

Whitcomb Co., Geo. D., Rochelle, Ill.

—(Industrial.)

Equipment Corp. of America, Chicago, Ill.

Porter Co., H. K., Pittsburgh, Pa.

Southern Iron & Equipment Co., Atlanta.

Whitcomb Co., Geo. D., Rochelle, Ill.

—(Mining.)

Porter Co., H. K., Pittsburgh, Pa.

Whitcomb Co., Geo. D., Rochelle, Ill.

—(Railway.)

Porter Co., H. K., Pittsburgh, Pa.

Southern Iron & Equipment Co., Atlanta.

Whitcomb Co., Geo. D., Rochelle, Ill.

LOGGING MACHINERY.

Clyde Iron Works Sales Co., Duluth, Minn.

LOOM PICK COUNTER.

Veeder-Root, Inc., Hartford, Conn.

LUBRICANTS.

Dixon Crucible Co., Jos., Jersey City, N.J.

Gulf Refining Co., Pittsburgh, Pa.

LUBRICATORS (Force Feed.)

Lunkenheimer Co., The, Cincinnati, O.

LUMBER (Ceiling, Flooring, Siding.)

Jackson Lumber Co., Lockhart, Ala.

Kirby Lumber Co., Houston, Texas.

Nashville Hardwood Flooring Co., Nashville, Tenn.

—(Creosoted.)

Amer. Creosote Wks., Inc., New Orleans.

Amer. Creosoting Co., Inc., Louisville, Ky.

Ayer & Lord Tie Co., Inc., Chicago.

Carolina Wood Preserving Co., Charleston, S. C.

Delaware Wood Preserving Co., Phila.

Eppinger & Russell Co., New York, N. Y.

Gulf States Creos. Co., Hattiesburg, Miss.

Savannah Creos. Co., Savannah, Ga.

—(Heavy Construction, Pitch, Pine, etc.)

Kirby Lumber Co., Houston, Texas.

—(Zinc Meta Arsenite Treated.)

Curtin-Howe Corp., New York City.

MACHINERY (Special.)

Bliss Co., E. W., Brooklyn, N. Y.

Earle Gear & Machine Co., Phila., Pa.

Fernholtz Machinery Co., St. Louis, Mo.

General Machine Works, York, Pa.

—and Supplies (New and Used.)

Adams Mch. Co., T. G., Savannah, Ga.

Electric Service Co., Cincinnati, Ohio.

Marine Metal & Supply Co., New York.

O'Brien Machinery Co., The, Phila., Pa.

Randle Machinery Co., The, Cincinnati, O.

Ryerson & Son, Inc., Jos. T., St. Louis and New York.

Seyfert's Sons, Inc., L. F., Phila., Pa.

Zelnicker Supply Co., W. A., St. Louis.

MACHINERY REPAIRING (Motors, Generators, etc.)

Nussbaum & Co., V. M., Fort Wayne, Ind.

MACHINE TOOLS

Ryerson & Son, Inc., Jos. T., St. Louis and New York.

Sebastian Lathe Co., Cincinnati, Ohio.

—(Used.)

Delta Equipment Co., Philadelphia, Pa.

O'Brien Machinery Co., Philadelphia, Pa.

MAIL CHUTES.

Cutler Mail Chute Co., Rochester, N. Y.

MARBLE (Producers and Manufacturers.)

Georgia Marble Co., The, Tate, Ga.

MATERIAL ELEVATORS.

National Equipment Corp. (Inslay, C. H., & E.), Milwaukee, Wis.

METAL-Cutting Machinery.

Earle Gear & Machine Co., Phila., Pa.

—Working Machinery.

Bliss Co., E. W., Brooklyn, N. Y.

MILL MACHINERY and SUPPLIES.

Lombard Iron Works & Supply Co., Augusta, Ga.

MIXERS.

National Equipment Corp. (Koehring, T. L. Smith, Kwik-Mix), Milwaukee, Wis.

—(Asphalt.)

Erie Machine Shops, Erie, Pa.

—(Hot.)

Koehring Co., Milwaukee, Wis.

—(Mortar.)

Chain Belt Co., Milwaukee, Wis.

Jaeger Machine Co., Columbus, Ohio.

—(Plaster.)

Blystone Mfg. Co., Cambridge Springs, Pa.

Chain Belt Co., Milwaukee, Wis.

Dunning & Boschert Press Co., Syracuse, N. Y.

Jaeger Machine Co., Columbus, Ohio.

MORTAR INGREDIENT.

Louisville Cement Co., Louisville, Ky.

MOTORS (Electric.)

Allis-Chalmers Mfg. Co., Milwaukee, Wis.

Century Electric Co., St. Louis, Mo.

Fairbanks, Morse & Co., Chicago, Ill.

General Electric Co., Schenectady, N. Y.

Western Electric Co., New York City.

Westinghouse Elec. & Mfg. Co., E. Pittsburgh, Pa.

MOTOR TRUCKS.

International Harvester Co. of America, Inc., Chicago, Ill.

NAILS (Cut.)

Reading Iron Co., Reading, Pa.

—and Spikes.

American Steel & Wire Co., Balto., Md.

Tennessee Coal, Iron & Railroad Co., Birmingham, Ala.

Youngstown Sheet & Tube Co., Youngstown, Ohio.

NAPHTHA (Industrial.)

White Oak Refining Co., Tulsa, Okla.

OIL (Fuel and Gas.)

Gulf Refining Co., Pittsburgh, Pa.

White Oak Refining Co., Tulsa, Okla.

—Cups.

Lunkenheimer Co., The, Cincinnati, O.

ORE-WASHING MACHINERY.

Georgia Iron Works, Augusta, Ga.

ORNAMENTAL BRONZE WORK.

Reath Co., J. S., Waukegan, Ill.

Michaels Art Bronze Co., Covington, Ky.

—Iron Work.

Michaels Art Bronze Co., Covington, Ky.

Roanoke Iron & Bridge Wks., Roanoke, Va.

Sneed Architectural Iron Works, Louisville, Ky.

Southern Engineering Co., Charlotte, N. C.

PACKAGE SERVICE (Corrugated Paper.)

Hinde & Dauch Paper Co., Sandusky, O.

PACKING (Asbestos, Metallic, Rubber, Leather, etc.)

Palmer Asbestos & Rubber Corp., Chicago.

Republic Rubber Co., Youngstown, Ohio.

PAINT (Aluminum.)

Aluminum Co. of America, Pittsburgh, Pa.

—(Metal Surfaces.)

Aluminum Co. of America, Pittsburgh, Pa.

Dixon Crucible Co., Jos., Jersey City, N. J.

—(Mill White, For Interior.)

Aluminum Co. of America, Pittsburgh, Pa.

Sonneborn Sons, Inc., L., New York.

—(Preservative.)

Cabot, Inc., Samuel, Boston, Mass.

Foster Co., Benjamin, Philadelphia, Pa.

PANELBOARDS.

Adam Electric Co., Frank, St. Louis.

PAPER BOXES (Corrugated, Shipping.)

Hinde & Dauch Paper Co., Sandusky, O.

PARTITIONS (Metal, Folding, Rolling.)

Kinnear Mfg. Co., The, Columbus, Ohio.

—(Sectionfold, Rolling, Wood.)

Wilson Corp., The, J. G., New York

ANOTHER SPECIAL FEATURE

the

COMPLETELY REVOLVING HEAD

of the

MATHEWS MODERNIZED HYDRANT

Reg. U. S. Patent Office

FACE nozzles in any direction easily and quickly—without shutting off the water and without digging or breaking the pavement. Simply loosen the bolts in the swivel flange—turn the nozzle section as you want it—tighten the nuts and it's all set.

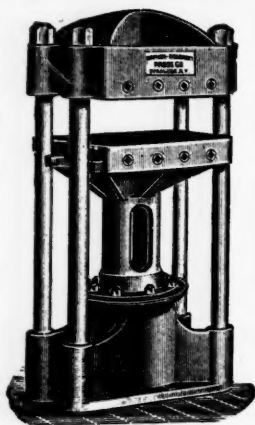
Remember, too, that a broken Mathews cannot leak—that a broken barrel can be replaced easily without digging or breaking the pavement—that all maintenance or repair operations are easier, faster and less expensive on the Mathews. All operating parts are fully protected against frost and rust.

Write for interesting complete description that will show you why the Mathews has been the leader for more than a half century.

R. D. WOOD & CO.

In business continuously since 1803

400 Chestnut St. Phila.
CAST IRON PIPE AND FITTINGS
SAND SPUN (centrifugally cast) and PIT CAST
GATE VALVES



STEAM PLATE PRESSES

BY HAND OR POWER
HYDRAULIC OR KNUCKLE
JOINT

Sizes 12"x12" to 48"x120"

Also Pressure Pumps, Accumulators, Hydraulic Valves and Fittings, and Presses for many other purposes. Let us tell you more about them.

Established 1872

DUNNING & BOSCHERT PRESS CO

INCORPORATED

386 W. Water St. SYRACUSE, N. Y.



1 OF 21

Sizes and Types of Hand and Motor Operated Cold Pipe Bending Machines we make bending 1/4" to 8 in. Pipe.

Cost of Bending		
1-in.—3 cents	3-in.—20 cents	6-in.—80 cents
2-in.—5 cents	4-in.—40 cents	8-in.—\$1.00

Over 8,000 in use. Send for Catalogue.
Pipe Threading and Cutting Machines 1/4" to 16".

AMERICAN PIPE BENDING MCH. CO.
11 Pearl Street Boston, Mass.



JOINTITE

WATERTIGHT SEWER PIPE JOINT COMPOUND
Also Miller Flush Tank Siphons, Automatic Sewage Ejectors, Convertible Diaphragm-Plunger Pumps, Sewage Disposal Apparatus.

PACIFIC FLUSH-TANK CO.

Write nearest office for catalog interested in.
4241 Ravenswood Ave. CHICAGO 9 Park Place NEW YORK

Pittsburgh Piping

MANUFACTURERS AND CONTRACTORS



WE ARE fully equipped to supply fabricated materials and to install complete piping systems for Electric Power Stations, Blast Furnaces, Steel Mills, Coke Works, and Industrial Plants of every description—backed by an experience of more than a quarter century.

PITTSBURGH PIPING & EQUIPMENT CO.

43rd St. and A. V. R. R., Pittsburgh, Pa.

New York	Chicago	Cleveland
220 Broadway	Peoples Gas Bldg.	Ulmer Building
Houghton, Mich.	Indianapolis	Detroit
Dee Bldg.	Occidental Bldg.	General Motors Bldg.

INDUSTRIAL PIPING
Power Piping Co., Pittsburgh, Pa.

Power Piping
FOR EVERY INDUSTRIAL NEED

PATENT ATTORNEYS.

Buck, Sterling F., Washington, D. C.
Coleman, Watson E., Washington, D. C.
Eaton, Paul B., Charlotte, N. C.
Sannett, Edward C., Washington, D. C.
Seymour & Bright, Washington, D. C.

PATTERNS (Drawing, etc.)

Hass Pattern Co., A. W., Atlanta, Ga.

PAVING Blocks (Creosoted Wood.)

American Creosote Works, New Orleans.

—(Rubber.)

Servicised Products Corp., Chicago, Ill.

—(Brick.)

National Paving Brick Mfrs. Assn., Washington, D. C.

—(Breaker.)

Gardner-Denver Co., Quincy, Ill.

—Mixers.

National Equipment Corp. (Koehring, T. L. Smith), Milwaukee, Wis.

—Plant (Asphalt.)

Simplicity System Co., Chattanooga, Tenn.

PENSTOCKS.

Chattanooga Boiler & Tank Co., Chattanooga, Tenn.
Chicago Bridge & Iron Works, Atlanta.
Pittsburgh-Des Moines Steel Co., Pittsburgh, Pa.
Smith Co., S. Morgan, York, Pa.

PERFORATED METAL.

Chicago Perforating Co., Chicago, Ill.
Erdle Perforating Co., Rochester, N. Y.
Harrington & King Perf. Co., Chicago.
Hendrick Mfg. Co., Carbondale, Pa.
Manhattan Perforated Metal Co., Inc., Long Island City, N. Y.
Mundt & Sons, Charles, Jersey City, N. J.

PETROLEUM REFINERS.

Gulf Refining Co., Pittsburgh, Pa.
White Oak Refining Co., Tulsa, Okla.

PHOSPHATE ACID.

Devoson Chemical Co., Baltimore, Md.

PIG-IRON.

Republic Steel Corp., Youngstown, Ohio.
Steel Sheffield Steel & Iron Co., Birmingham, Ala.
Tennessee Coal, Iron & Railroad Co., Birmingham, Ala.

PILING (Creosoted.)

Amer. Creosote Wks., Inc., New Orleans.
Amer. Creosoting Co., Inc., Louisville.
Ayer & Lord Tie Co., Inc., Chicago.
Carolina Wood Preserving Co., Charleston, S. C.
Savannah Creosoting Co., Inc., Savannah.
Wales Wood-Preserving Co., Norfolk, Va.

—(Steel Sheet.)

Carnegie Steel Co., Pittsburgh, Pa.
Zelmaier Supply Co., W. A., St. Louis.

—(Yellow Pine.)

Jackson Lumber Co., Lockhart, Ala.

FILLOW BLOCKS.

Geldens' Fdry. & Mch. Co., Columbus, Ga.

PIPE.

Albert & Davidson Pipe Corp., Brooklyn, N. Y.
Albert Pipe Sup. Co., Inc., Brooklyn, N. Y.
Armco Culvert Mfrs. Assn., Middletown, O.
Birmingham Boiler & Engr. Co., Birmingham, Ala.
Central Pipe & Supply Co., Charleston, W. Va.
Greenpoint Iron & Pipe Co., Inc., Brooklyn, N. Y.
Greenspon's Sons Iron & Steel Co., St. Louis, Mo.
Hudson Pipe & Supply Co., Bayonne, N. J.
Maryland Pipe & Steel Corp., Baltimore, Md.
National Tube Co., Pittsburgh, Pa.
Pittsburgh Piping & Equip. Co., Pittsburgh, Pa.
Power Piping Co., Pittsburgh, Pa.
—(Cast Iron.)
Amer. Cast Iron Pipe Co., Birmingham.
Cast Iron Pipe Research Assn., Chicago.
Central Foundry Co., The, New York, N. Y.
Glamorgan Pipe & Fdry. Co., Lynchburg, Va.
S. Pipe & Foundry Co., Burlington, N. J.

—(Dredge.)

Abendroth & Root Mfg. Co., New York.
Lancaster Iron Works, Inc., Lancaster, Pa.

—(Hammer-Welded.)

National Tube Co., Pittsburgh, Pa.

—(Iron and Steel.)

Ryerson & Son, Inc., Jos. T., St. Louis and New York.

—(Riveted.)

Abendroth & Root Mfg. Co., New York.

—(Second-Hand.)

Albert & Davidson Pipe Corp., Brooklyn, N. Y.
Albert Pipe Sup. Co., Inc., Brooklyn, N. Y.
Central Pipe & Sup. Co., Charleston, W. Va.

Greenpoint Iron & Pipe Co., Inc., Brooklyn, N. Y.
Greenspon's Sons Iron & Steel Co., St. Louis, Mo.
Hudson Pipe & Supply Co., Bayonne, N. J.
Marine Metal & Supply Co., New York.
Maryland Pipe & Steel Corp., Baltimore, Md.

—(Spiral Riveted.)

Abendroth & Root Mfg. Co., New York.
Taylor Forge & Pipe Wks., Chicago, Ill.

—(Steel.)

Bethlehem Steel Co., Bethlehem, Pa.
Chicago Bridge & Iron Works, Chicago, Ill.
National Tube Co., Pittsburgh, Pa.
Pittsburgh Piping & Equip. Co., Pittsburgh, Pa.
Power Piping Co., Pittsburgh, Pa.
Republic Steel Corp., Youngstown, Ohio.
Youngstown Sheet & Tube Co., Youngstown, Ohio.

—(Welded.)

Welded Products Co. of La., Inc., New Orleans, La.

—(Wrought Iron.)

Reading Iron Co., Reading, Pa.

—Benders and Headers.

Grinnell Co., Inc., Providence, R. I.

—Bending Machines.

American Pipe Bending Machine Co., Boston, Mass.

—Coatings.

Foster Co., Benjamin, Philadelphia, Pa.

—Fittings.

Amer. Cast Iron Pipe Co., Birmingham.
Georgia Iron Works, Augusta, Ga.
Grinnell Co., Inc., Providence, R. I.

—Unions and Joints.

Dart Mfg. Co., E. M., Providence, R. I.

—Systems (Industrial.)

Grinnell Co., Inc., Providence, R. I.
Pittsburgh Piping & Equip. Co., Pittsburgh, Pa.
Power Piping Co., Pittsburgh, Pa.

PLATES (Steel.)

Bethlehem Steel Co., Bethlehem, Pa.
Carnegie Steel Co., Pittsburgh, Pa.
Central Iron & Steel Co., Harrisburg, Pa.
Chattanooga Boiler & Tank Co., Chattanooga, Tenn.
Granite City Steel Co., Granite City, Ill.
Gulf States Steel Co., Birmingham, Ala.
Ryerson & Son, Inc., Jos. T., St. Louis and New York.
Tennessee Coal, Iron & Railroad Co., Birmingham.

PNEUMATIC TOOLS.

Ingersoll-Rand Co., New York, N. Y.

POLES (Creosoted.)

Amer. Creosote Wks., Inc., New Orleans.
Amer. Creosoting Co., Inc., Louisville, Ky.
Ayer & Lord Tie Co., Inc., Chicago.
Brown Wood Preserving Co., Louisville, Ky.
Carolina Wood Preserving Co., Charleston, S. C.
Savannah Creosoting Co., Savannah, Ga.

—(Tubular, Steel.)

National Tube Co., Pittsburgh, Pa.

—(Yellow Pine.)

Jackson Lumber Co., Lockhart, Ala.

—(Zinc Meta Arsenite Treated.)

Curtin-Howe Corp., New York City.

POLISHING MACHINERY.

(Wheels, Blocks.)
Carborundum Co., Niagara Falls, N. Y.

POSTS, (Cast Iron, Railway and Highway.)

U. S. Pipe & Foundry Co., Burlington, N. J.

POWER TRANSMISSION MACHINERY.

American Pulley Co., Philadelphia, Pa.
Diamond Chain & Mfg. Co., Indianapolis.
Goldens' Fdry. & Mch. Co., Columbus, Ga.
O'Brien Machinery Co., Phila., Pa.
Schaffeld's Sons Co., J. S., Macon, Ga.
Wood's Sons Co., T. B., Chambersburg, Pa.

—(Pumps.)

Luitwieler Pumping Engine Co., Rochester, N. Y.

PREHEATERS (Air.)

Combustion Engr. Corp., New York City.

PRESSES, (Baling, Cottonseed Oil, Hydraulic and Power.)

Dunning & Boschert Press Co., Inc., Syracuse, N. Y.
Ripley Foundry & Machine Co., Ripley, O.
Tomlin-Harris Machine Co., Cordale, Ga.

—(Metal Stamping.)

Bliss Co., E. W. Brooklyn, N. Y.

PRINTERS (Book, Catalog, Job.)

Smith & Son Co., Oscar T., Baltimore, Md.
Young & Selden Co., Baltimore, Md.

PRODUCER (Gas Machines.)
Gas-O-Flame Store Wks., Port Deposit, Md.
Wood & Co., E. D., Phila., Pa.

PULLEYS (Friction Clutch.)
Caldwell Co., Inc., W. E., Louisville, Ky.
Wood's Sons Co., T. B., Chambersburg, Pa.

—(Motor and Machine.)
American Pulley Co., Philadelphia, Pa.

—(Steel Split.)
American Pulley Co., Philadelphia, Pa.

—Shafting and Hangers.
American Pulley Co., Philadelphia, Pa.
Goldens' Bdy. & Mch. Co., Columbus, Ga.
Wood's Sons Co., T. B., Chambersburg, Pa.

PULVERIZED COAL EQUIPMENT.
Combustion Engr. Corp., New York, N. Y.
Fuller Lehigh Co., Fullerton, Pa.

PULVERIZERS (See Crushing and Pulverizing Machinery.)

PUMPING MACHINERY.
Cameron, A. S., Steam Pump Works
(Ingersoll-Rand Co.), New York City.
Chain Belt Co., Milwaukee, Wis.
Cook, Inc., A. D., Lawrenceburg, Ind.
Fairbanks, Morse & Co., Chicago, Ill.
Ingersoll-Rand Co. (A. S. Cameron Steam
Pump Works), New York, N. Y.
International Derrick & Equipment Co.,
Columbus, Ohio.
Luitwieler Pumping Engine Co., Rochester,
N. Y.
Myers & Bro. Co., The F. E., Ashland, O.
National Equipment Corp., (C. E. & E.
Division), Milwaukee, Wis.
Viking Pump Co., Cedar Falls, Iowa.
Virginia Mch. & Well Co., Richmond, Va.

PUMPS (Air.)
Manistee Iron Works Co., Manistee, Mich.

—(Air Lift.)
Ingersoll-Rand Co., New York, N. Y.
Sullivan Machinery Co., Chicago, Ill.

—(Boiler Feed.)
Cameron, A. S., Steam Pump Works
(Ingersoll-Rand Co.), New York City.
DeLaval Steam Turbine Co., Trenton, N. J.
Erie Pump & Engine Wks., Medina, N. Y.
Ingersoll-Rand Co. (A. S. Cameron Steam
Pump Works), New York, N. Y.
Manistee Iron Works Co., Manistee, Mich.
Myers & Bro. Co., The F. E., Ashland, O.

—(Centrifugal.)
Allis-Chalmers Mfg. Co., Milwaukee, Wis.
Cameron, A. S., Steam Pump Works
(Ingersoll-Rand Co.), New York City.
DeLaval Steam Turbine Co., Trenton, N. J.
Erie Pump & Engine Wks., Medina, N. Y.
Fairbanks, Morse & Co., Chicago, Ill.
Ingersoll-Rand Co. (A. S. Cameron Steam
Pump Works), New York, N. Y.
Jaeger Machine Co., Columbus, Ohio.
La Bour Co., Elkhart, Ind.
Layne & Bowler, Inc., Memphis, Tenn.
Manistee Iron Works Co., Manistee, Mich.
Novo Engine Co., Lansing, Mich.

—(Contractors.)
Erie Pump & Engine Wks., Medina, N. Y.
Novo Engine Co., Lansing, Mich.

—(Deep Well.)
Cook, Inc., A. D., Lawrenceburg, Ind.
Layne & Bowler, Inc., Memphis, Tenn.
Luitwieler Pumping Engine Co., Rochester,
N. Y.
Novo Engine Co., Lansing, Mich.

—(Diaphragm.)
Novo Engine Co., Lansing, Mich.

—(Hydraulic.)
Dunning & Boschert Press Co., Inc.,
Syracuse, N. Y.

—(Power.)
Sterling Engine Co., Buffalo, N. Y.

—(Pulverized Coal.)
Fuller Lehigh Co., Fullerton, Pa.

—(Rotary.)
Viking Pump Co., Cedar Falls, Iowa.

—(Sand and Dredging.)
Erie Pump & Engine Wks., Medina, N. Y.
Georgia Iron Works, Augusta, Ga.

—(Steam.)
Cameron, A. S., Steam Pump Works
(Ingersoll-Rand Co.), New York City.
Fairbanks, Morse & Co., Chicago, Ill.
Ingersoll-Rand Co. (A. S. Cameron Steam
Works), New York, N. Y.

—(Vacuum.)
Ingersoll-Rand Co., New York, N. Y.
Sullivan Machinery Co., Chicago, Ill.

—(Water Works.)
Layne & Bowler, Inc., Memphis, Tenn.
Manistee Iron Works Co., Manistee, Mich.

PUNCHING AND SHEARING MACHINERY.
Bliss Co., E. W., Brooklyn, N. Y.
Whitney Metal Tool Co., Rockford, Ill.

RACK RAKES.
Newport, News Shipbuilding & Drydock
Co., Newport News, Va.

RADIATOR ENCLOSURES.
Manhattan Perforated Metal Co., Inc.,
Long Island City, N. Y.

RADIATORS (Gas Steam.)
Williams Radiator Co., Los Angeles, Calif.

RAILINGS (Iron Pipe.)
Pipe Railing Constr. Co., Long Island
City, N. Y.

—and Grilles, Iron and Brass,
(Banks and Offices.)
Ludlow Saylor Wire Co., St. Louis, Mo.

RAILROAD Equipment and Supplies (New.)
International Derrick & Equipment Co.,
Columbus, Ohio.
Robinson & Orr, Pittsburgh, Pa.

—Equipment and Supplies
(Used.)
Levis & Co., Henry, Philadelphia, Pa.

Smith & Co., W. M., Birmingham, Ala.
Southern Iron and Equip. Co., Atlanta.
Zelnicker Supply Co., W. A., St. Louis.

—(Frogs and Switches.)
Bethlehem Steel Co., Bethlehem, Pa.
Koppel Ind. Car & Equip. Co., Koppel, Pa.
Robinson & Orr, Pittsburgh, Pa.

RAILROADS — (Offering Industrial, Agricultural and Commercial Opportunities.)

Atlanta and West Point R. R., Atlanta.
Central of Georgia Rwy., Savannah, Ga.
Missouri-Kansas-Texas Lines, Dallas, Tex.
Model Land Company, Flagler System,
St. Augustine, Fla.
Norfolk & Western Railway, Roanoke, Va.
Tennessee Central Railway, Nashville.

RAILS (New and Used.)

Carnegie Steel Co., Pittsburgh, Pa.
Levis & Co., Henry, Philadelphia, Pa.
Perry, Buxton, Doone Co., Philadelphia.
Robinson & Orr, Pittsburgh, Pa.
Smith & Co., W. M., Birmingham, Ala.
Southern Iron & Equip. Co., Atlanta, Ga.
Sweet's Steel Co., Williamsport, Pa.
Tennessee Coal, Iron & Railroad Co., Birmingham, Ala.
Zelnicker Supply Co., W. A., St. Louis.

RAILWAYS (Industrial.)
Easton Car & Construction Co., Easton, Pa.
Koppel Ind. Car & Equip. Co., Koppel, Pa.

—(Marine.)
Charleston Dry Dock and Machine Co.,
Charleston, S. C.

RECEPTACLES (Self-Closing — Waste Paper.)
Whitaker Paper Co., Baltimore, Md.

REELS and SPOOLS. (Pressed Metal.)
American Pulley Co., Philadelphia, Pa.

REFRATORIES.
Harbison-Walker Refractories Co., Pittsburgh, Pa.

North American Refractories, Co., Cleveland, Ohio.

Taylor Sons Co., Charles, Cincinnati.

REFRIGERATING Machinery
(See Ice and Refrigerating Machinery and Supplies.)

REINFORCING for Concrete.
American Steel and Wire Co., Balto., Md.
Carnegie Steel Co., Pittsburgh, Pa.
Connors Steel Co., Birmingham, Ala.
Dietrich Brothers, Baltimore, Md.
Gulf States Steel Co., Birmingham, Ala.
Knoxville Iron Co., Knoxville, Tenn.
Ryerson & Son, Inc., Jos. T., St. Louis
and New York.
Southern Engineering Co., Charlotte, N. C.
Truscon Steel Co., Youngstown, Ohio.

RIVER & HARBOR IMPROVEMENTS, (Dredging, Docks, Wharves, etc.)

Arundel Corp., The, Baltimore, Md.
Atlantic Gulf and Pacific Co., New York.
Kansas City Bridge Co., Kansas City.

RIVETS.
Russell, Burdall & Ward Bolt & Nut
Co., Port Chester, N. Y.

ROAD and Street Machinery.
Acme Road Mchry. Co., Frankfort, N. Y.
Adams Co., J. D., Indianapolis, Ind.
Austin-Western Road Machinery Co., Chicago.
Blaw-Knox Co., Pittsburgh, Pa.
Buffalo-Springfield Roller Co., Springfield, O.

Caterpillar Tractor Co., Peoria, Ill.
Erie Machine Shops, Erie, Pa.
Harris Co., B. W. & Leo, Minneapolis, Minn.
Huber Mfg. Co., The, Marion, Ohio.
Universal Crane Co., Lorain, Ohio.

SEWER PIPE

CULVERT PIPE

METER BOXES

WALL COPING

DRAIN TILE



FLUE LINING

FIRE BRICK

FIRE CLAY

GRATE BACKS

SEPTIC TANKS

This stamp on Clay Products carries the same guarantee of quality as Sterling on silver.

We solicit your inquiries

LEE CLAY PRODUCTS COMPANY

Office and Plant:

CLEARFIELD, Rowan County KENTUCKY

One-Fifth
The
Weight of
Cast Iron
Pipe



One-Third
The
Weight of
Wrought
Pipe

AN ABSOLUTELY TIGHT DURABLE PIPE
The lap riveted seam repeats its cycle every twelve inches, forming a broad-stiffening rib of great value, and makes Root pipe one-third stronger than any other type of pipe construction. Light weight and simple connections reduce transportation handling and erection costs. Suitable for conveying water, air, gas, exhaust steam and powdered coal.

ABENDROTH & ROOT MANUFACTURING COMPANY
Pipe Specialties Continuously Since 1867. Sales Office: Woolworth Bldg., N. Y.

**CAST IRON PIPE
—AND FITTINGS—**

American Cast Iron Pipe Company
Birmingham, Ala.
SALES OFFICES IN PRINCIPAL CITIES

GLAMORGAN
PIPE & FOUNDRY CO.
GENERAL FOUNDERS AND MACHINISTS
LYNCHBURG, VA.

UNIVERSAL CAST IRON PIPE
THE CENTRAL FOUNDRY COMPANY
Graybar Bldg., 43rd St. and Lexington Ave., New York, N. Y.
Chicago Birmingham Dallas San Francisco
no packing no calking no bell holes

TAYLOR'S SPIRAL RIVETED PIPE

**TAYLOR
SPIRAL RIVETED PIPE**
3" to 42" Diameter—Lengths Up to 40 Ft.

FORGE WELDED PIPE
16" to 96" Diameter
Lengths Up to 100 Ft.

FORGED STEEL PIPE FLANGES
3/4" to 96" Diameter
150-Lb. to 1500-Lb. Stds.

Taylor Forge & Pipe Works, Chicago
Box 485, Chicago 50 Church St., New York

THE PHOENIX IRON CO.

MANUFACTURERS OF OPEN HEARTH

**Structural Steel Shapes, Beams,
Channels, Angles, and Ship Shapes**

Works: Phoenixville, Pa. Main Offices: Philadelphia, Pa.

OFFICES:

22 S. 15th St., Philadelphia 30 Church St., New York
Munsey Building, Washington 110 State St., Boston
City Savings Bk. Bldg., Albany, N. Y. 26 Victoria St., London**THE PHOENIX BRIDGE CO.****Engineers, Fabricators, and Erectors
Bridges and Other Structures of Steel**

CAPACITY 60,000 TONS

Works and Engineering Office: Phoenixville, Pa.

**CONVERSE BRIDGE & STEEL CO.
STRUCTURAL STEEL**

For

**Industrial Buildings, Mines, Refineries,
and the Building Trades**

CHATTANOOGA

TENNESSEE

Bristol Steel & Iron Works, Inc.**STRUCTURAL STEEL FOR BRIDGES, BUILDINGS
AND ALL INDUSTRIAL PURPOSES
STEEL PLATE & MISCELLANEOUS IRON WORK**

BRISTOL, VA.—TENN.

**CAROLINA STEEL & IRON COMPANY
GREENSBORO, N. C.**

Sales Office:—709 Nissen Bldg., WINSTON-SALEM, N. C.

Structural Steel for Buildings and BridgesCapacity 1000 Tons per Month. 3000 Tons in Stock
The Largest Steel Fabricators in the Carolinas**DIETRICH BROTHERS****Structural and Ornamental Iron and Steel Works
Large Stock of Standard and Bethlehem Shapes
CONCRETE REINFORCEMENTS
BALTIMORE, MD.****BELMONT IRON WORKS**PHILADELPHIA NEW YORK EDDYSTON
Southern Sales Office, Charlotte, N. C.

Engineers Contractors Exporters

Structural Steel

Shop and Field Welded Steel Buildings

*"You Can't go wrong in a Day"*IF YOU HAVE A CRUSHING OR GRINDING
PROBLEM WRITE FOR INFORMATION ON
'DAY' PATENT HAMMER-MILL CRUSHERS

DAY PULVERIZER CO. KNOXVILLE TENN.

—and Street Material.Boxley & Co., W. W., Roanoke, Va.
Sloss-Sheffield Steel and Iron Co., Bir-
mingham, Ala.
Truscon Steel Co., Youngstown, Ohio.
Woodstock Slag Corp., Birmingham, Ala.**—Graders and Scrapers.**Adams Co., J. D., Indianapolis, Ind.
Caterpillar Tractor Co., Peoria, Ill.**—Oils and Preservatives.**

Gulf Refining Co., Pittsburgh, Pa.

—Reinforcement (Welded**Fabric.)**

American Steel & Wire Co., Balto., Md.

—Rollers (Steam and Gasoline.)Buffalo-Springfield Roller Co., Spring-
field, O.

Erie Machine Shops, Erie, Pa.

Huber Mfg. Co., The, Marion, Ohio.

—Rollers (For Concrete Work)

Macon Concrete Roller Co., Macon, Ga.

—Scarifiers.Buffalo-Springfield Roller Co., Spring-
field, O.**ROOF INSULATION.**Armstrong Cork & Insulation Co., Lan-
caster, Pa.**ROOFING (Asphalt Built-Up.)**

Barber Asphalt Co., Philadelphia, Pa.

—(Ready Prepared, Felt, Tar,**Asbestos, Asphalt.)**

Ruberoid Co., New York City.

Servicised Products Corp., Chicago, Ill.

—and Siding (Composition.)

Ruberoid Co., New York City.

—and Siding (Metal.)

American Rolling Mill Co., Middletown, O.

American Sheet and Tin Plate Co., Pitts-
burgh, Pa.

Gulf State Steel Co., Birmingham, Ala.

Milnor Steel Co., Milwaukee, Wis.

Republic Steel Corp., Youngstown, Ohio.

Ryerson & Son, Jos. T., St. Louis and
New York.

Truscon Steel Co., Youngstown, Ohio.

Youngstown Sheet and Tube Co., Youngs-
town, O.**—Tile, Cement (Interlocking****Flat, Channel Glass.)**

Federal-American Cement Tile Co., Chicago.

—Tiles.

Federal-American Cement Tile Co., Chicago.

ROPE (Manila, Sisal, Hemp, etc.)

Broderick & Bascom Rope Co., St. Louis.

—Drives.

Wood's Sons Co., T. B., Chambersburg, Pa.

RULES (Steel.)

Lufkin Rule Co., Saginaw, Mich.

SAFES.

York Safe & Lock Co., York, Penna.

SAND.

Arundel Corp., Baltimore, Md.

Friend & Co., Inc., Petersburg, Va.

Georgia Sand & Gravel Co., Augusta, Ga.

SANITARY Drinking Fountains.

Rundle-Spence Mfg. Co., Milwaukee, Wis.

SASH (Industrial.)

Truscon Steel Co., Youngstown, Ohio.

SAWMILL Machinery.

Schodfeld's Sons Co., J. S., Macon, Ga.

SAW RIGS.National Equipment Corp., (C. H. & E.
Division), Milwaukee, Wis.**SAWS (Cold Metal.)**

Earle Gear and Machine Co., Phila., Pa.

SCAFFOLDING (Wooden.)

Patent Scaffolding Co., Chicago, Ill.

SCRAPERS (Drag and Wheel.)

Adams Co., J. D., Indianapolis, Ind.

Harris Co., B. W. & Leo, Minneapolis,
Minn.

Sauerman Bros., Chicago, Ill.

SCRAP IRON AND STEEL.

Huntz Sons, M. J., Philadelphia, Pa.

Perry, Burton, Deane Co., Philadelphia.

Smith & Co., W. M., Birmingham, Ala.

SCREEN CLOTH.

Seneca Wire & Mfg. Co., Fostoria, Ohio.

SCREENING (For Concrete and**Road Construction.)**

American Limestone Co., Knoxville, Tenn.

SCREENS (Sand, Gravel, Stone,**Coal, Ore, etc.)**

Chicago Perforating Co., Chicago, Ill.

Diamond Iron Works, Minneapolis, Minn.

Erdle Perforating Co., Rochester, N. Y.

Hendrick Mfg. Co., Carbondale, Pa.

Ludlow Saylor Wire Co., St. Louis, Mo.

Mundt & Sons, Charles, Jersey City, N. J.

Universal Crusher Co., Cedar Rapids, Ia.

—(Sifting.)

Newark Wire Cloth Co., Newark, N. J.

SCREW-Machine Products.

Progressive Mfg. Co., Torrington, Conn.

SCREWS (Machine.)

Progressive Mfg. Co., Torrington, Conn.

SEAWALLS.

Shore-Line Builders, Inc., Jacksonville, Fla.

SEPARATORS (Dust.)

Raymond Bros., Impact Pulv. Co., Chicago.

SEWAGE Disposal Apparatus.

Pacific Flush-Tank Co., New York, N. Y.

SEWER Joint Compounds.

Pacific Flush-Tank Co., New York, N. Y.

Servicised Products Corp., Chicago, Ill.

—Pipe (Vitrified.)

Bannon Pipe Co., Louisville, Ky.

Lee Clay Products Co., Clearfield, Ky.

Owensboro Sewer Pipe Co., Owensboro, Ky.

SHAFTING.Ryerson & Sons, Inc., Jos. T., St. Louis
and New York.**—Material (Tubular.)**

National Tube Co., Pittsburgh, Pa.

SHARPENING Stones.

Carborundum Co., Niagara Falls, N. Y.

SHEET Metal Working Ma-**chinery.**

Bliss Co., E. W., Brooklyn, N. Y.

Whitney Metal Tool Co., Rockford, Ill.

Yoder Co., The, Cleveland, Ohio.

—Steel and Iron.

American Rolling Mill Co., Middletown, O.

American Sheet and Tin Plate Co., Pitts-
burgh, Pa.

Bethlehem Steel Co., Bethlehem, Pa.

Granite City Steel Co., Granite City, Ill.

Gulf States Steel Co., Birmingham, Ala.

Republic Steel Corp., Youngstown, Ohio.

Ryerson & Son, Inc., Jos. T., St. Louis
and New York.Tennessee Coal, Iron & Railroad Co.,
Birmingham, Ala.Youngstown Sheet & Tube Co., Youngs-
town, O.**SHEETS (Asbestos.)**

Ruberoid Co., New York City.

SHINGLES (Asbestos.)

Ruberoid Co., New York City.

—(Stain.)

Cabot, Inc., Samuel, Boston, Mass.

SHIPPING CARTONS (Cor-**rugated Paper.)**

Hinde & Dauch Paper Co., Sandusky, O.

SHOVELS (Steam, Gas and**Electric Power.)**Buckeye Traction Ditcher Co., Findlay,
Ohio.

Bucyrus-Erie Co., Erie, Penna.

Harnischfeger Corp., Milwaukee, Wis.

Industrial Brownhoist Corp., Cleveland, O.

National Equipment Corp., (Koehring,
Insley), Milwaukee, Wis.

Northwest Engineering Co., Chicago, Ill.

Ohio Power Shovel Co., Lima, Ohio.

Thew Shovel Co., The, Lorain, Ohio.

Universal Power Shovel Co., Milwaukee,
Wis.**SHUTTERS (Steel.)**

Merchant & Evans Co., Philadelphia, Pa.

—(Steel and Wood Bifolding.)

Klennear Mfg. Co., The, Columbus, Ohio.

SIEVES (Testing.)

Newark Wire Cloth Co., Newark, N. J.

SILICATE OF SODA.

Grasselli Chemical Co., Inc., Birmingham.

SITES (Manufacturing.)

Alabama Power Co., Birmingham, Ala.

Atlanta and West Point R. R., Atlanta.

Brown & Co., Chattanooga, Tenn.

Central of Georgia Rwy., Savannah, Ga.

Fort Worth Chamber of Commerce, Fort Worth, Texas.
Galveston, City of, Galveston, Texas.
Georgia Power Co., Atlanta, Ga.
Jacksonville, City of, Jacksonville, Fla.
Missouri-Kansas-Texas Lines, Dallas, Tex.
Model Land Company, (Flagler System), St. Augustine, Fla.
New Orleans Ch. of Com., New Orleans, La.
Norfolk-Portsmouth Ch. of Commerce Norfolk, Va.
Norfolk & Western Railway, Roanoke, Va.
Tennessee Central Railway, Nashville.
Texas Power & Light Co., Dallas, Texas.

SKYLIGHTS.
Milcor Steel Co., Milwaukee, Wis.

SLABS (Concrete Floor.)
Federal-American Cement Tile Co., Chicago.
—(Concrete Roof.)
Federal-American Cement Tile Co., Chicago.

SLAG, For Concrete.
Sloss-Sheffield Steel and Iron Co., Birmingham, Ala.
Woodstock Slag Corp., Birmingham, Ala.
—(Furnace.)
Sloss-Sheffield Steel and Iron Co., Birmingham, Ala.
Woodstock Slag Corp., Birmingham, Ala.

SLINGS (Chain.)
Woodhouse Chain Works, Trenton, N. J.
—(Wire Rope.)
Roebbing's Sons Co., John A., Trenton, N. J.

SLUICE GATES AND APPLIANCES.
Smith Co., S. Morgan, York, Pa.

SNATCH BLOCKS (For Wire and Manila Rope.)
Patterson Co., W. W., Pittsburgh, Pa.

SPEED REDUCERS.
Earle Gear & Mach. Co., Phila., Pa.

SPIKES, (Railroad, Ship.)
Bethlehem Steel Co., Bethlehem, Pa.
Republic Steel Corp., Youngstown, Ohio.
Sweet's Steel Co., Williamsport, Pa.

SPRINGS (Machinery, Railway, Spiral Steel.)
American Steel & Wire Co., Balto., Md.
—(Wire—All Kinds.)
American Steel & Wire Co., Baltimore, Md.

SPIRINKLERS (Automatic Fire.)
Grinnell Co., Inc., Providence, R. I.

SPROCKETS
Diamond Chain & Mfg. Co., Indianapolis, Ind.

STACKS (Iron and Steel.)
Biggs Boiler Works Co., Akron, Ohio.
Chattanooga Boiler & Tank Co., Chattanooga, Tenn.
Chicago Bridge and Iron Works, Atlanta.
Downingtown Iron Works, Downingtown, Pa.
Hammond Iron Works, Warren, Pa.
Hedges Walsh Weldner Co., Chattanooga, Tenn.
Ingalls Iron Works Co., Birmingham, Ala.
Lombard Iron Works & Supply Co., Augusta, Ga.
Pittsburgh-Des Moines Steel Co., Pittsburgh, Pa.
Schofield's Sons Co., J. S., Macon, Ga.
U. S. Pipe & Foundry Co., Burlington, N. J.
Virginia Bridge & Iron Co., Roanoke, Va.

STAINS (Shingle, Woodwork.)
Cabot, Inc., Samuel, Boston, Mass.

STAIR STEPS (Safety.)
Irving Iron Works Co., Long Is. City, N. Y.
—Treads.
Central Iron & Steel Co., Harrisburg, Pa.

STAMPING (Sheet Metal.)
American Pulley Co., Philadelphia, Pa.

STANDPIPES.
Chattanooga Boiler & Tank Co., Chattanooga, Tenn.
Chicago Bridge & Iron Works, Atlanta, Ga.
Hammond Iron Works, Warren, Pa.
Pittsburgh-Des Moines Steel Co., Pittsburgh, Pa.

STATIONERS (Envelopes, Letter and Billheads, etc.)
Smith & Son Co., Oscar T., Baltimore, Md.
Young & Selden Co., Baltimore, Md.

STEAM SHOVELS.
Bucyrus-Erie Co., Erie, Pa.
Thew Shovel Co., The, Lorain, Ohio.

STEAM (Specialties.)
Lunkenheimer Co., The, Cincinnati, O.
Mueller Co., Decatur, Ill.

STEEL.
Bethlehem Steel Co., Bethlehem, Pa.
Central Iron & Steel Co., Harrisburg, Pa.
Dietrich Brothers, Baltimore, Md.
Gulf States Steel Co., Birmingham, Ala.
Republic Steel Corp., Youngstown, Ohio.
Ryerson & Son, Inc., Jos. T., St. Louis and New York.
Tennessee Coal, Iron & Railroad Co., Birmingham, Ala.
Virginia Bridge & Iron Co., Roanoke, Va.

—(Alloy.)
Timken Roller Bearing Co., Canton, Ohio.

—(Cold Rolled.)
American Steel & Wire Co., Balto., Md.

—(Information Only.)
American Institute of Steel Construction, Inc., New York City.

—(Special Analysis.)
Timken Roller Bearing Co., Canton, Ohio.

—(Tool, High Speed.)
Bethlehem Steel Co., Bethlehem, Pa.

—Buildings (Designers and Builders.)

American Bridge Co., New York, N. Y.
Belmont Iron Works, Philadelphia, Pa.
Butler Mfg. Co., Kansas City, Mo.
Carolina Steel & Iron Co., Greensboro, N. C.
Champion Bridge Co., Wilmington, O.
Eichleay, Jr., Co., John, Pittsburgh, Pa.
Ingalls Iron Works Co., Birmingham, Ala.
International Derrick & Equipment Co., Columbus, Ohio.
McClintic-Marshall Co., Pittsburgh, Pa.
Phoenix Iron Co., The, Phila., Pa.
Pittsburgh-Des Moines Steel Co., Pittsburgh, Pa.
Virginia Bridge & Iron Co., Roanoke, Va.

—Forms (Curb, Gutter, Sidewalk, Road.)
Blaw-Knox Co., Pittsburgh, Pa.

—Plate Construction (Riveted or Welded.)

Birmingham Boiler & Engr. Co., Birmingham, Ala.
Bristol Steel & Iron Works, Inc., Bristol, Va.
Carolina Steel & Iron Co., Greensboro, N. C.
Central Iron & Steel Co., Harrisburg, Pa.
Chattanooga Boiler & Tank Co., Chattanooga, Tenn.
Chicago Bridge & Iron Works, Atlanta, Ga.
Combustion Engr. Corp., New York City.
Hammond Iron Works, Warren, Pa.
Hedges Walsh Weldner Co., Chattanooga, Tenn.
Ingalls Iron Works Co., Birmingham, Ala.
Lancaster Iron Works, Inc., Lancaster, Pa.
Phoenix Iron Co., The, Phila., Pa.
Pittsburgh-Des Moines Steel Co., Pittsburgh, Pa.
Traylor Engr. & Mfg. Co., Allentown, Pa.

STOKERS (Mechanical.)
Babcock & Wilcox Co., The, New York
Combustion Engr. Corp., New York City

STORAGE Batteries.
Electric Storage Battery Co., Philadelphia

—Bins (Steel.)
Blaw-Knox Co., Pittsburgh, Pa.
Butler Bin Co., Waukesha, Wis.

STRIPS (Steel.)
American Steel & Wire Co., Balto., Md.

STRUCTURAL STEEL (Hot Galvanized.)

Bessemer Galvanizing Works, Birmingham

—and Iron.
American Bridge Co., New York, N. Y.
Belmont Iron Works, Philadelphia, Pa.
Bristol Steel & Iron Works, Inc., Bristol, Va.

Carnegie Steel Co., Pittsburgh, Pa.
Carolina Steel & Iron Co., Greensboro, N. C.
Champion Bridge Co., Wilmington, Ohio.
Chattanooga Boiler & Tank Co., Chattanooga, Tenn.
Converse Bridge & Steel Co., Chattanooga, Tenn.

Dietrich Brothers, Baltimore, Md.
Eichleay, Jr., Co., John, Pittsburgh
Ingalls Iron Works Co., Birmingham, Ala.
McClintic-Marshall Co., Pittsburgh, Pa.

Nashville Bridge Co., Nashville, Tenn.
Phoenix Iron Co., The, Phila., Pa.
Pittsburgh-Des Moines Steel Co., Pittsburgh, Pa.

Republic Steel Corp., Youngstown, Ohio.
Roanoke Iron & Bridge Works, Inc., Roanoke, Va.

Ryerson & Son, Inc., Jos. T., St. Louis and New York.

Snead Architectural Iron Works, Louisville, Ky.

Southern Engineering Co., Charlotte, N. C.
Tennessee Coal, Iron & Railroad Co., Birmingham, Ala.

Virginia Bridge & Iron Co., Roanoke, Va.

HANGARS... AIRPLANE...



The S:A:F:E Way is the S.T.E.E.L. Way

THIS HANGAR was built for the Southwest Air Fast Express (S. A. F. E. WAY) at Tulsa, Okla. by The Austin Company. We furnished the complete steel framework.

For attractive appearance and practical design, this hangar speaks right out in the meeting in favor of steel.

VIRGINIA BRIDGE & IRON CO
Roanoke Birmingham Memphis Atlanta New Orleans
New York Los Angeles Charlotte Dallas El Paso

VIRGINIA BRIDGE

From One Source

You can secure your entire steel requirements from Bethlehem — with the assurance that each item is as good and dependable as the facilities of a completely equipped organization with years of experience can make it.

BETHLEHEM STEEL COMPANY

General Offices: Bethlehem, Pa.

District Offices: New York, Boston, Philadelphia, Baltimore, Washington, Atlanta, Pittsburgh, Buffalo, Cleveland, Cincinnati, Detroit, Chicago, St. Louis

Pacific Coast Distributor: Pacific Coast Steel Corporation, San Francisco, Los Angeles, Portland, Seattle, Honolulu.

BETHLEHEM

TANKS—STEEL PLATE CONSTRUCTION

Barges, Welded and Riveted Pipe, Penstocks, Standpipes, Breechings and Stacks

OIL REFINERY and CHEMICAL EQUIPMENT

Pressure, Vacuum and Storage Tanks for All Purposes

LANCASTER IRON WORKS

Hager St., LANCASTER, PA.

HEAVY STEEL PLATE FABRICATION

OF EVERY DESCRIPTION

LET US QUOTE ON YOUR STANDARD OR SPECIAL WORK

TRAYLOR ENGINEERING & MANUFACTURING CO.

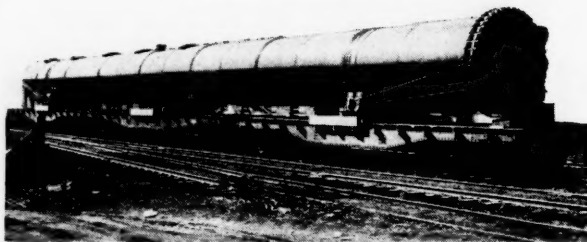
ALLENTOWN, PENNSYLVANIA

COLE

TANKS & VATS
for ACID STORAGE
NH. STORAGE,
Aluminum
Alloy Steels
Lead Lined
Monel Metal
Tin Lined

BOILERS—HRT
and MANNING
JACKETED KETTLES
AGITATOR TANKS
BUBBLE TOWERS
GAS SCRUBBERS
WELDED STEEL PIPE
CREOSOTING CYLINDERS

Metal Plate Work



Cole Creosoting Cylinder 8' diameter x 138' long.

R. D. COLE MANUFACTURING CO.

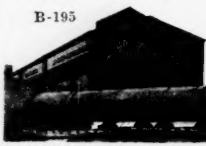
Established 1854

NEWNAN, GA.

New York Office,
5 Beekman St.

STEEL TANKS
SMOKESTACKS
STEEL PIPE
GAS HOLDERS
STEEL BINS
RETORTS
STEEL PLATE
WORK

Creosoting cylinder,
8 x 150 ft.
B-195



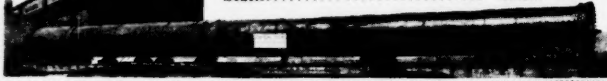
HORTON

Steel
Plate Work

Designed and built by:

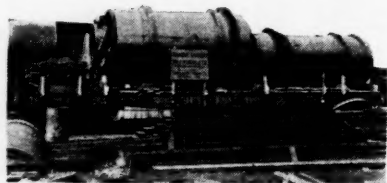
CHICAGO BRIDGE & IRON WORKS

Birmingham.....1530 Fifth St., North
Dallas.....3308 Magnolia Bldg.
Houston.....1114 Electric Bldg.
Tulsa.....2411 Exchange Bank Bldg.
New York.....3113 Hudson Terminal
Cleveland.....2216 Midland Bank Bldg.
Chicago.....2106 Old Colony Bldg.
San Francisco.....1040 Rialto Bldg.
Philadelphia.....1619 Jefferson Bldg.
Detroit.....1510 Lafayette Bldg.
Boston.....1510 Consol. Gas Bldg.
Seattle.....4328 Smith Tower



SOUTHLAND

PRODUCTS



**STAND
PIPES
SMOKE
STACKS
TOWERS
AND
TANKS
STEEL
RIVETED
PIPE**

CHATTANOOGA BOILER & TANK CO.

Chattanooga, Tenn.

SULPHATE OF ALUMINA.
Grasselli Chemical Co., Inc., Birmingham.

SULPHIDE OF SODA.
Grasselli Chemical Co., Inc., Birmingham.

SULPHURIC ACID.
Davison Chemical Co., The, Balto., Md.
Du Pont de Nemours & Co., Inc., E. I.,
Wilmington, Del.

SUPER-HEATERS (Steam.)
Babcock & Wilcox Co., The, New York.

SURVEYS (Industrial.)
Dame-Wolfe Co., Washington, D. C.
MacElwee & Crandall, Inc., Cambridge,
Mass.
Technical Service Co., New York, N. Y.

—(Quantity.)
Martin, Joe B., Charlotte, N. C.
Rowan, W. E., Charlotte, N. C.

SURVEYING INSTRUMENTS.
Weber Co., Inc., F., Philadelphia, Pa.

SWEEPING COMPOUNDS.
Clark, Lloyd T., Southern Pines, N. C.

SWINGING ENGINES.
Dake Engine Co., Grand Haven, Mich.

**SWITCHBOARDS, SWITCHES,
ETC.**

Adam Elec. Co., Frank, St. Louis.
General Electric Co., Schenectady, N. Y.
Westinghouse Elec. & Mfg. Co., E. Pitts-
burgh, Pa.

SYSTEMS (Business.)
Ernst & Ernst, New York, N. Y.

**TACKLE BLOCKS (For Wire
and Manila Rope.)**
Patterson Co., W. W., Pittsburgh.

TANKS (Air Compressor.)
Air-Tight Steel Tank Co., Pittsburgh, Pa.
Seafie & Sons, Wm. B., Oakmont, Pa.
Titusville Iron Works Co., Titusville, Pa.

—(Elevated Steel.)
Caldwell Co., Inc., W. E., Louisville, Ky.
Chattanooga Boiler & Tank Co., Chatta-
nooga, Tenn.

Chicago Bridge & Iron Wks., Atlanta, Ga.
Cole Mfg. Co., R. D., Newnan, Ga.
Pittsburgh-Des Moines Steel Co., Pitts-
burgh, Pa.

Schofield's Sons Co., J. S., Macon, Ga.
Virginia Bridge & Iron Co., Roanoke, Va.
—(Elevated Wood.)

Caldwell Co., Inc., W. E., Louisville, Ky.
Davis & Son, G. M., Palatka, Fla.

—(Iron and Steel.)
Air-Tight Steel Tank Co., Pittsburgh, Pa.
American Bridge Co., New York, N. Y.
Chattanooga Boiler & Tank Co., Chatta-
nooga, Tenn.

Chicago Bridge & Iron Wks., Atlanta, Ga.
Cole Mfg. Co., R. D., Newnan, Ga.
Downingtown Iron Works, Downingtown, Pa.

Hammond Iron Works, Warren, Pa.
Lancaster Iron Works, Inc., Lancaster, Pa.
Loomis Iron Works & Supply Co., Au-
gusta, Ga.

McClintic-Marshall Co., Pittsburgh, Pa.
Pittsburgh-Des Moines Steel Co., Pitts-
burgh, Pa.

Seafie & Sons, Wm. B., Oakmont, Pa.
Schofield's Sons Co., J. S., Macon, Ga.
Titusville Iron Works Co., Titusville, Pa.

Virginia Bridge & Iron Co., Roanoke, Va.
Westinghouse Traction Brake Co., Wil-
merding, Pa.

—(Seamless Steel.)
National Tube Co., Pittsburgh, Pa.

—(Storage, Oil, etc.)
Biggs Boiler Works, Akron, Ohio.
Birmingham Boiler & Engr. Co., Bir-
mingham, Ala.

Chattanooga Boiler & Tank Co., Chatta-
nooga, Tenn.
Chicago Bridge & Iron Wks., Atlanta, Ga.

Downingtown Iron Works, Downingtown, Pa.
Hammond Iron Works, Warren, Pa.
Ingalls Iron Works Co., Birmingham, Ala.

Pittsburgh-Des Moines Steel Co., Pitts-
burgh, Pa.
Titusville Iron Works Co., Titusville, Pa.

—(Welded.)
Welded Products Co. of La., Inc., New
Orleans, La.

—(Wood.)
Caldwell Co., Inc., W. E., Louisville, Ky.
Davis & Son, G. M., Palatka, Fla.
Virginia Mch. & Well Co., Richmond, Va.

TAPE (Insulating.)
Okonite Co., New York, N. Y.

—(Measuring.)
Lufkin Rule Co., Saginaw, Mich.

TAX SPECIALISTS.
Ernst & Ernst, New York, N. Y.
Le Baron, E. T., Jacksonville, Fla.

TELEPHONE SERVICE.
American Telephone & Telegraph Co.

TERRA COTTA (Ornamental.)
Atlanta Terra Cotta Co., Atlanta, Ga.

TEXTILE CHEMICALS.
Grasselli Chemical Co., Inc., Birmingham.

TILE (Cement Roofing.)
Federal-American Cement Tile Co., Chicago.

—(Cork Composition.)
Congoileum-Nairn, Inc., Kearny, N. J.

—(Cork Flooring.)
Congoileum-Nairn, Inc., Kearny, N. J.

—(Floor.)
Hood Co., B. Mifflin, Daisy, Tenn.

—(Roof.)
Hood Co., B. Mifflin, Daisy, Tenn.

—(Sewer.)
Lee Clay Products Co., Clearfield, Ky.

TIMBER (Creosoted.)
Amer. Creosote Wks., Inc., New Orleans.
Amer. Creosoting Co., Inc., Louisville, Ky.
Carolina Wood Preserving Co., Charleston,
S. C.

TIME Recorders.
Kaiser Klock Co., L. E., Baltimore, Md.

TIN AND TERNE PLATES.
American Sheet & Tin Plate Co., Pitts-
burgh, Pa.

Bethlehem Steel Co., Bethlehem, Pa.
Granite City Steel Co., Granite City, Ill.
Youngstown Sheet & Tube Co., Youngs-
town, Ohio.

TOBACCO MACHINERY.
Ripley Foundry & Machine Co., Ripley, O.

TOOLS (Measuring.)
Lufkin Rule Co., Saginaw, Mich.

TOROHES (Blow.)
Wall Mfg. Supply Co., P., Pittsburgh, Pa.

**TOWERS (Electric Transmis-
sion.)**

American Bridge Co., New York, N. Y.
Bessemer Galvanizing Works, Birmingham.
International Derrick & Equipment Co.,
Columbus, Ohio.

Nashville Bridge Co., Nashville, Tenn.

—(Radio.)

Bessemer Galvanizing Works, Birmingham.
International Derrick & Equipment Co.,
Columbus, Ohio.

—(Steel and Wood.)

Chattanooga Boiler & Tank Co., Chatta-
nooga, Tenn.
Cole Mfg. Co., R. D., Newnan, Ga.

TRACK (Portable or Permanent.)
Equipment Corp. of America, Chicago, Ill.

—(Semi-Crawler.)
Moon Track Co., Chicago, Ill.

TRACTORS (Industrial.)

Atlas Car & Mfg. Co., The, Cleveland, O.
Caterpillar Tractor Co., Peoria, Ill.
Clark Tractor Co., Battle Creek, Mich.

Cleveland Tractor Co., Cleveland, Ohio.
International Harvester Co. of America,
Inc., Chicago, Ill.

—(Road.)

Allis-Chalmers Mfg. Co., Milwaukee, Wis.
Caterpillar Tractor Co., Peoria, Ill.
Cleveland Tractor Co., Cleveland, Ohio.

—Attachments (Side Boom.)

W-K-M Co., Inc., Houston, Texas.

TRAILERS. (Four Wheel.)

Electric Wheel Co., Quincy, Ill.

—(Heavy Duty.)

Electric Wheel Co., Quincy, Ill.

—(Industrial.)

Easton Car & Construction Co., Easton, Pa.

Electric Wheel Co., Quincy, Ill.

—(Pole.)

Electric Wheel Co., Quincy, Ill.

TRAMWAYS, (Aerial Wire Rope.)

American Steel & Wire Co., Balto., Md.
Broderick & Bascom Rope Co., St. Louis.
Leschen & Sons Rope Co., A., St. Louis.

TRANSFORMERS.

General Electric Co., Schenectady, N. Y.
Westinghouse Elec. & Mfg. Co., E. Pitts-
burgh, Pa.

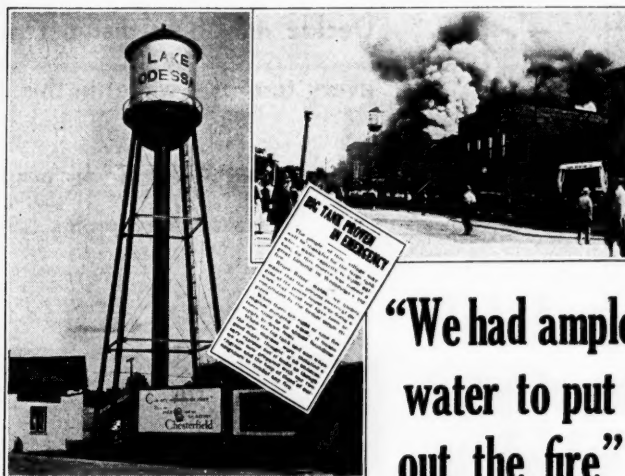
—(Used.)
Electric Service Co., Cincinnati, O.

**TRANSMISSION TOWERS (Gal-
vanized.)**

Bessemer Galvanizing Works, Birmingham.
International Derrick & Equipment Co.,
Columbus, Ohio.
McClintic-Marshall Co., Pittsburgh, Pa.

TRENCH MACHINERY. See
Excavators (Trench.)**TRESTLES (Wooden.)**
Patent Scaffolding Co., Chicago, Ill.**TRI-SODIUM PHOSPHATE.**
Grasselli Chemical Co., Inc., Birmingham.**TRUCK CRANES.**
Universal Crane Co., Lorain, O.**TRUCKS (Dry Kiln.)**
Moore Dry Kiln Co., Jacksonville, Fla.**—(Industrial.)**
Atlas Car & Mfg. Co., The, Cleveland, O.
Lansing Co., Lansing, Mich.**—(Motor.)**
International Harvester Co., of America, Inc., Chicago, Ill.**—(Platform, Freight, Mill, Factory, etc.)**
American Pulley Co., Philadelphia, Pa.
Clark Tractor Co., Battle Creek, Mich.
Electric Wheel Co., Quincy, Ill.**TUBES (Boiler.)** See **Boiler Tubes.****TUBING (Seamless Steel.)**
National Tube Co., Pittsburgh, Pa.
Timken Rolling Bearing Co., Canton, O.**TURBINES (Hydraulic.)**
Cook, Inc., A. D., Lawrenceburg, Ind.
Davis Foundry & Mach. Works, Rome, Ga.
Lefell & Co., The, James, Springfield, O.
Smith Co., S. Morgan, York, Pa.**—(Steam.)**
Allis-Chalmers Mfg. Co., Milwaukee, Wis.
DeLaval Steam Turbine Co., Trenton, N.J.
General Electric Co., Schenectady, N.Y.
Westinghouse Elec. & Mfg. Co., E. Pittsburgh, Pa.**TURNBUCKLES.**
Russell, Burdall & Ward Bolt & Nut Co., Port Chester, N. Y.**TURNABLES.**
American Bridge Co., New York, N. Y.
Easton Car & Construction Co., Easton, Pa.
Virginia Bridge & Iron Co., Roanoke, Va.**—(Portable for Motor Trucks.)**
Blaw-Knox Co., Pittsburgh, Pa.**UNIONS.**
Dart Mfg. Co., E. M., Providence, R. I.**UNIT HEATERS.**
Grinnell Co., Inc., Providence, R. I.**—VALVES.**
Ludlow Valve Mfg. Co., The, Troy, N. Y.
Lunkenheimer Co., The, Cincinnati, Ohio.
Marco Nordstrom Valve Co., San Francisco, Cal.
Mueller Co., Decatur, Ill.
Vogt Brothers Mfg. Co., Louisville, Ky.
Vogt Machine Co., Henry, Louisville, Ky.
Westinghouse Traction Brake Co., Wilmerding, Pa.**—(Acid Proof.)**
Lunkenheimer Co., The, Cincinnati, Ohio.**—(Gate.)**
Ludlow Valve Mfg. Co., The, Troy, N. Y.
Lunkenheimer Co., The, Cincinnati, Ohio.
Wood & Co., R. D., Philadelphia, Pa.**VAULTS (Bank and Safe Deposit.)**
York Safe & Lock Co., York, Penna.**VENTILATORS (Roof.)**
Merchant & Evans Co., Philadelphia, Pa.
Milcor Steel Co., Milwaukee, Wis.**WARDROBES (Hygienic, School.)**
Wilson Corp., The J. G., New York.**WATCHMAN'S PORTABLE CLOCKS.**
Davis-Paradis Watchman's Clock Corp., New York, N. Y.
Kaiser Clock Co., L. E., Balto., Md.**WATERPROOFING (For Brick, Concrete, Granite.)**
Foster Co., Benjamin, Philadelphia, Pa.
Headley Emulsified Products Co., Philadelphia, Pa.
Servitised Products Corp., Chicago, Ill.
Sonneborn, Sons, Inc., L., New York.**WATER Purification.**
Bacharach & Co., E. W., Kansas City, Mo.**—Softening Apparatus (Purifying.)**
American Water Softener Co., Phila., Pa.**International Filter Co., Chicago, Ill.**
Southern Products Corp., New Orleans, La.**—Works Supplies and Appliances.****Amer. Cast Iron Pipe Co., Birmingham.**
Cast Iron Pipe Research Assn., Chicago.
Cook, Inc., A. D., Lawrenceburg, Ind.
Giamorgan Pipe & Fdry. Co., Lynchburg, Va.
Leadite Co., The, Philadelphia, Pa.
Musler Co., Decatur, Ill.
U. S. Pipe & Foundry Co., Burlington, N.J.
Wood & Co., R. D., Philadelphia, Pa.**WELDING APPARATUS (Electric Arc.)**
General Electric Co., Schenectady, N. Y.
Westinghouse Elec. & Mfg. Co., E. Pittsburgh, Pa.**WELL CONTRACTORS (Oil, Artesian, etc.)**
Virginia Machy. & Well Co., Richmond, Va.**WHEELBARROWS.**
Lansing Co., Lansing, Mich.
Sterling Wheelbarrow Co., Milwaukee.**WHEEL PRESSES (Hydraulic.)**
Tomlin-Harris Machine Co., Cordale, Ga.**WHEELS AND AXLES.**
Carnegie Steel Co., Pittsburgh, Pa.**WINCHES.**
Sasgen Derrick Co., Chicago, Ill.**WINDOW Frames and Sash (Metal.)**
Bayley Co., The, William, Springfield, O.
Truscon Steel Co., Youngstown, Ohio.**WINDOWS (Bronze Casement.)**
Michaels Art Bronze Co., Covington, Ky.**—(Steel Casement, Casement.)**
Bayley Co., The, William, Springfield, O.
Milcor Steel Co., Milwaukee, Wis.**—(Steel Pivoted, Screened.)**
Bayley Co., The, William, Springfield, O.**—(Ventilating.)**
Bayley Co., The, William, Springfield, O.**WIRE (All Kinds.)**
American Steel & Wire Co., Chicago.
Ryerson & Son, Inc., Jos. T., St. Louis and New York.
Seneca Wire & Mfg. Co., Fostoria, O.**—(Barbed Wire, etc.)**
American Steel & Wire Co., Balto., Md.
Gulf States Steel Co., Birmingham, Ala.
Youngstown Sheet & Tube Co., Youngstown, Ohio.**—(Fence.)**
Anchor Post Fence Co., Baltimore, Md.
Cyclone Fence Co., Waukegan, Ill.**—(Flat and Round.)**
American Steel & Wire Co., Balto., Md.
Roebbling's Sons Co., John A., Trenton, N.J.
Seneca Wire & Mfg. Co., Fostoria, O.**—(Galvanized and Annealed.)**
American Steel & Wire Co., Balto., Md.
Gulf States Steel Co., Birmingham, Ala.
Seneca Wire & Mfg. Co., Fostoria, Ohio.**—Cloth (Iron, Steel, Copper, Brass, etc.)**
Harrington & King Perf. Co., Chicago.**—Ludlow Saylor Wire Co., St. Louis, Mo.**
Newark Wire Cloth Co., Newark, N. J.
Roebbling's Sons Co., John A., Trenton, N.J.**—Seneca Wire & Mfg. Co., Fostoria, O.****—Goods.**
Cyclone Fence Co., Waukegan, Ill.**—Netting.**
Ludlow Saylor Wire Co., St. Louis, Mo.**—Rope (Transmission, Hoisting, Haulage.)**
American Steel & Wire Co., Chicago, Ill.
Broderick & Bascom Rope Co., St. Louis.**—Leschen & Sons Rope Co., A., St. Louis.**
Roebbling's Sons Co., John A., Trenton, N.J.**—Rope Clips.**
American Steel & Wire Co., Balto., Md.**—Broderick & Bascom Rope Co., St. Louis.****—Stapling.**
Seneca Wire & Mfg. Co., Fostoria, O.**—(Telephone and Telegraph.)**
American Steel & Wire Co., Balto., Md.**—(Welding.)**
American Steel & Wire Co., Chicago, Ill.**—Roebbling's Sons Co., John A., Trenton, N.J.**
Seneca Wire & Mfg. Co., Fostoria, Ohio.**WOOD (Preserved.)**
Delaware Wood Preserving Co., Phila.**ZINC CHLORIDE.**
Grasselli Chemical Co., Inc., Birmingham.**ZINC META ARSENITE (Wood Preservative.)**
Curtin-Howe Corp., New York City.**Gulf States Creos. Co., Hattiesburg, Miss.**

PITTSBURGH

DES MOINES

"We had ample water to put out the fire"

—writes former village president, E. G. Gartering of Lake Odessa, Mich. in his letter of July 17th, 1930 describing "the most disastrous explosion and fire we ever had . . . the whole town looked doomed" which occurred July 16th, 1930. "We had 75,000 gallons of water on hand in your tank —which saved our town."

In 1928 the town of Lake Odessa ordered a 75,000 gallon "Pittsburgh-Des Moines" Elevated Water Tank on a tower 91 feet, 8 inches high, to guarantee a strong gravity pressure—for domestic water supply and for just such serious emergencies as shown above. Lake Odessa secures its water from several small wells, and without the reserve storage supply given by the PDM Tank, their fire fighting apparatus soon would have run out of water in fighting the above conflagration.

Is your town or manufacturing plant adequately protected with a good water supply?

The "Pittsburgh-Des Moines" organization has been erecting water tanks in all sections of the United States for over 34 years.

Pittsburgh-Des Moines engineers are always ready to cooperate with municipal officials in recommending the correct tank or tower, standpipe or steel reservoir. Write today for our Water Works Catalog.

QUALITY TANKS

Pittsburgh - Des Moines Steel Company

3411 Neville Island, Pittsburgh, Pa.
629 Glenn Building, Atlanta, Ga.

Des Moines
Chicago

Seattle
San Francisco

New York
Dallas

Quick Steps to HIGHER NET

1ST Decide right now that net profits must be watched, nursed, increased at every turn of a wheel in this close-fisted year of 1931. » » »

2ND Search out in your mind, in your factory, in every department the probable places where profits leak out through too loose control of production.



3RD Spot every last machine that wastes time and money by failure to report accurately its every-minute, every-day production. » » »

4TH Put Veeder-Root Counters on those machines as fast as you know what type of Counter will hold them to high yield most effectively.

5TH Write VEEDER-ROOT for Catalog and full particulars about new Pre-Determined Counter (at left) which stops machines at any figure set.

Veeder-ROOT INCORPORATED
HARTFORD, CONN. Manufacturers of Counters for all Purposes . .

SCAIFE COPPER-BRAZED TANKS

for Air, Gas and Liquids

Welded Tanks Riveted Tanks Rivet-Weld Tanks



WATER SOFTENERS and FILTERS

(127 Years old—Founded 1802)

WM. B. SCAIFE & SONS CO.

Main Office OAKMONT, PA.

Pittsburgh

New York

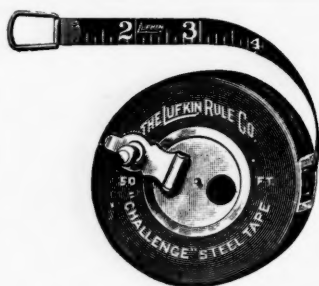
Chicago

AIR-TIGHT STEEL TANK CO.

PITTSBURGH, PA.



TANKS FOR: High pressure gas and air storage—Pneumatic water systems—Gasoline and oil storage—Oil burning equipment—Open top—Welded. ATSCO Genuine Copper Brazed Tanks for high pressure — the tightest, safest, strongest tank it is possible to construct by any known process. ASME code tanks.



LUFKIN

Tapes, Rules and Machinists' Tools

can be depended upon for the most exacting measuring requirements in your plant.

THEY ARE ACCURATE

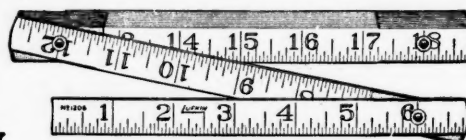
Send for Catalog

THE LUFKIN RULE CO.

SAGINAW, MICH.

Windsor, Canada

New York City



Alphabetical Index of Advertisements

A		K	
Abendroth & Root Mfg. Co.	111	Kansas City Bridge Co.	28
Adams Co., J. D.	95	Kennedy-Riegger Drilling Co.	30
Adam Electric Co., Frank	8	Kerlow Steel Flooring Co.	69
Adams Machinery Co., T. G.	88	Kershaw, Inc., Royce	86
Airmap Corp. of America	28	Kinnear Manufacturing Co.	71
Air-Tight Steel Tank Co.	116	Kirby Lumber Co.	28
Akers, William	81	Knowles, Morris, Inc.	28
Alabama Power Co.	87	Knoxville Iron Co.	90
Albert & Davidson Pipe Corp.	87	Koppel Industrial Car & Equip. Co.	90
Albert Pipe Supply Co.	104		
Allis-Chalmers Mfg. Co.	29		
Alpaugh & Sons, Chas. W.	110		
Alpha Portland Cement Corp.	93		
Aluminum Co. of America	110		
American Bridge Co.	111		
American Cast Iron Pipe Co.	27		
American Creosote Works Inc.	104		
American Cresosoting Co.	10		
American Elevator & Machine Co.	32		
American Gas Association	93		
American Institute of Steel Construction, Inc.	110		
American Limestone Co.	67		
American Pipe Bending Machine Co.	114		
American Process Co.	29		
American Rolling Mill Co.	114		
American Sheet & Tin Plate Co.	2		
American Steel & Wire Co.	29		
American Telephone & Telegraph Co.	31		
American Water Softener Co.	65		
Anchor Post Fence Co.	104		
Andrews Co., A. H.	28		
Angle-Blackford Co.	92		
Armco Culvert Mfrs. Assn.	81		
Armstrong Cork & Insulation Co.	92		
Arundel Corporation	87		
Associated Gas & Electric System	101		
Atlanta & West Point R. R.	71		
Atlanta Terra Cotta Co.	97		
Atlantic Bridge Co.	101		
Atlantic Cresosoting Co.	71		
Atlantic, Gulf & Pacific Co.	90		
Atlas Car and Manufacturing Co.	29		
Audit Co. of the South	94		
Austin-Western Road Machinery Co.	94		
Ayer & Lord Tie Co.	94		
B		L	
Babcock & Wilcox Co.	106	LaBour Co., Inc.	20
Bacharach & Co., E. W.	81	Lacey & Co., James D.	28
Baltimore Commercial Bank	81	Lancaster Iron Works	113
Baltimore Trust Co.	81	Law & Co., A. M.	34
Bank of New York & Trust Co.	81	Layne & Bowler, Inc.	34
Bannon Pipe Co.	81	Leadite Co.	34
Barber Asphalt Co.	81	Le Baron, E. T.	111
Barber-Greene Co.	81	Lee Clay Products Co.	28
Barrow-Agee Laboratories	29	Lee, William S.	28
Bay City Shovels, Inc.	96	Leffell & Co., James	34
Bayley Co., Wm.	103	Leschen & Sons Rope Co., A.	88
Bedford Foundry & Machine Co.	103	Levis & Co., Henry	88
Belmont Iron Works	112	Lima Excavating Sales Agency	29
Bessemer Galvanizing Works	82	Lockwood Greene Engrs., Inc.	29
Bethlehem Steel Co.	113	Lombard Iron Works & Supply Co.	29
Billingsley, James W.	29	Louisiana Corr. Culvert Co.	29
Birmingham Boiler & Engr. Co.	28	Louisville Cement Co.	29
Birmingham Galvanizing Co.	28	Ludlow-Saylor Wire Co.	23
Blair, Algernon	28	Ludlow Valve Mfg. Co.	116
Blaw-Knox Co.	28	Lufkin Rule Co.	23
Bliss Co., E. W.	4	Luitwieler Pumping Engine Co.	75
Blue Ridge Glass Co.	28	Lunkenheimer Co.	75
Blystone Mfg. Co.	28		
Boney, Leslie N.	28		
Boxley & Co., W. W.	112		
Bristol Steel & Iron Works, Inc.	112		
Broderick & Bascom Rope Co.	71		
Brown Wood Preserving Co.	71		
Brown & Co.	96		
Buckeye Traction Ditcher Co.	96		
Bucyrus-Erie Co.	96		
Buffalo-Springfield Roller Co.	97		
Ru-kes, J. V. & R. T.	28		
Butler Bin Co.	28		
Butler Manufacturing Co.	28		
Bylesby Engineering & Management Corp.	29		
C		M	
Cabot, Inc., Samuel	102	M & M Clamp Co.	71
Caldwell Co., W. E.	102	MacElwee & Crandall, Inc.	28
Cameron Steam Pump Works, A. S. (Ingersoll-Rand Co.)	6-7	Macon Concrete Roller Co.	96
Carborundum Co.	6-7	Main, Inc. Chas. T.	28
		Manhattan Perforated Metal Co.	93
		Manistee Iron Works Co.	77
		Marine Metal & Supply Co.	87
		Martin, Joe B.	29
		Maryland Pipe & Steel Co.	87
		McClintie-Marshall Co.	29
		McCrary Co., J. B.	28
		Mees & Mees	30
		Meigs, Bassett & Slaughter	81
		Mercantile Trust Co.	81
		Merchant & Evans Co.	28
		Merco Nordstrom Valve Co.	28
		Michaels Art Bronze Co.	88
		Milburn Co., Alexander	28
		Milburn, Heister & Co.	69
		Milcor Steel Co.	69
		Milwaukee Electric Crane & Hoist Corp.	28
		Missouri-Kansas-Texas Lines	98
		Model Land Co. (Flagler System)	91
		Monaghan Mfg. Corp.	91
		Moon Track Co.	30
		Moore Dry Kiln Co.	88
		Moore-Handley Hardware Co.	29
		Moss, Jr., W. Wade	30
		Mott Core Drilling Co.	102
		Mountain State Steel Foundries	30
		Moyer Co., Tilghman	28
		Mueller Co.	28
		Mullergren, Arthur L.	93
		Mundt & Sons, Chas.	77
		Myers & Bro. Co., F. E.	29
		Myers & Sons, J. L.	29
D		N	
Dake Engine Co.	90	Nashville Bridge Co.	101
Dame-Wolfe & Co.	30	Nashville Hardwood Flooring Co.	71
Dart Mfg. Co., E. M.	30	National Equipment Corp.	96
Davis & Son, G. M.	30	National Paving Brick Mfrs. Assn.	96
Davis Foundry & Machine Works	82	National Traffic Guard Co.	96
Davis-Paradis Watchman's Clock Corp.	82	National Tube Co.	96
Davison Chemical Co.	96	Newark Wire Cloth Co.	96
Day Pulverizer Co.	112	New Orleans Assn. of Commerce	96
Deemer Steel Casting Co.	103	Newport News Shipbuilding & Dry Dock Co.	96
DeKalb, Courtenay	30	Norfolk-Portsmouth Ch. of Commerce	99
DeLaval Steam Turbine Co.	77	Norfolk-Port-Traffic Commission	99
Delaware Registration Trust Co.	81	Norfolk and Western Railway	99
Delaware Wood Preserving Co.	87	North American Refractories Co.	99
Delta Equipment Co.	87	Northwest Engineering Co.	99
Diamond Chain & Mfg. Co.	25	Novo Engine Co.	81
Dietrich Brothers	112	Nuveen & Co., John	81
Dillon Supply Co.	86		
Dixie Culvert & Metal Co.	107		
Dixie Culvert Mfrs. Assn.	107		
Dixon Crucible Co., Jos.	29		
Dow & Smith	110		
Downingtown Iron Works	110		
Dunning & Boschert Press Co.	110		
DuPont de Nemours & Co., E. I.	110		
E		O	
Earle Gear & Machine Co.	73	Oakland Iron Works Co.	73
Easton Car & Constr. Co.	28	Ogden Iron Works Co.	73
Eichley, Jr., Co., John	28	Ogden Steel Works Co.	73
Electric Bond & Share Co.	86	Ogden Steel Works Co.	73
Electric Service Co.	86	Ogden Steel Works Co.	73
Electric Storage Battery Co.	86	Ogden Steel Works Co.	73
Electric Wheel Co.	86	Ogden Steel Works Co.	73
Engineering Service Corp.	28	Ogden Steel Works Co.	73
Eppinger & Russell Co.	71	Ogden Steel Works Co.	73
Equipment Corp. of America	93	Ogden Steel Works Co.	73
Erdle Perforating Co.	93	Ogden Steel Works Co.	73
Erie Machine Shops	97	Ogden Steel Works Co.	73
Erie Pump & Engine Works	77	Ogden Steel Works Co.	73
Ernst & Ernst	83	Ogden Steel Works Co.	73
Excavating Equipment Dealers, Inc.	83	Ogden Steel Works Co.	73
Exposition Chemical Industries	83	Ogden Steel Works Co.	73
F		P	
Fairbanks, Morse & Co.	21-22	Pacific Portland Cement Co.	21-22
Fay, Spofford & Thorndike	29	Pacific Portland Cement Co.	21-22
G		Q	
Galveston, Texas, City of	86	Quincy Portland Cement Co.	86
Galveston Wharf Co.	86	Quincy Portland Cement Co.	86
Gardner & Howe	28	Quincy Portland Cement Co.	86
Gardner-Denver Co.	28	Quincy Portland Cement Co.	86
Garraway & Co., S. G.	86	Quincy Portland Cement Co.	86
Gate City Sash & Door Co.	86	Quincy Portland Cement Co.	86
Gay & Co., W. O.	16-17	Quincy Portland Cement Co.	86
General Electric Co.	16-17	Quincy Portland Cement Co.	86
General Electric Vapor Lamp Co.	16-17	Quincy Portland Cement Co.	86
General Machine Works	16-17	Quincy Portland Cement Co.	86
Georgia Cresosoting Co.	77	Quincy Portland Cement Co.	86
Georgia Iron Works	69	Quincy Portland Cement Co.	86
Georgia Marble Co.	69	Quincy Portland Cement Co.	86
Georgia Power Co.	92	Quincy Portland Cement Co.	86
Georgia Sand & Gravel Co.	111	Quincy Portland Cement Co.	86
Glamorgan Pipe & Fdry. Co.	106	Quincy Portland Cement Co.	86
Goldens Foundry & Machine Co.	13	Quincy Portland Cement Co.	86
Granite City Steel Co.	26	Quincy Portland Cement Co.	86
Grasselli Chemical Co.	87	Quincy Portland Cement Co.	86
Greenpoint Iron & Pipe Co.	87	Quincy Portland Cement Co.	86
Greenspon's Sons Co., Jos.	87	Quincy Portland Cement Co.	86
Gregory Electric Co.	87	Quincy Portland Cement Co.	86
Greiner & Co., J. E.	28	Quincy Portland Cement Co.	86
Gridley Constr. Co., Lee A.	28	Quincy Portland Cement Co.	86
Grinnell Co., Inc.	75	Quincy Portland Cement Co.	86
Gulf Refining Co.	69	Quincy Portland Cement Co.	86
Gulf States Cresosoting Co.	69	Quincy Portland Cement Co.	86
Gulf States Steel Co.	69	Quincy Portland Cement Co.	86
Gunita Concrete & Constr. Co.	69	Quincy Portland Cement Co.	86
Gunita Construction Co.	69	Quincy Portland Cement Co.	86
H		R	
Haas Pattern Co., A. W.	81	Railroad Iron Works Co.	81
Hammond Iron Works	81	Railroad Iron Works Co.	81
Hanchett Bond Co.	73	Railroad Iron Works Co.	81
Harbison-Walker Refractories Co.	29-101	Railroad Iron Works Co.	81
Hardaway Contracting Co.	96-103	Railroad Iron Works Co.	81
Harnischfeger Corp.	96-103	Railroad Iron Works Co.	81
Harrington & King Perforating Co.	93	Railroad Iron Works Co.	81
Harrub Engr. Co., C. N.	28	Railroad Iron Works Co.	81
Harris Co., B. W. & Leo	28	Railroad Iron Works Co.	81
Harza Engineering Co.	90	Railroad Iron Works Co.	81
Hayward Co., C. N.	90	Railroad Iron Works Co.	81
Headley Emulsified Products Co.	73	Railroad Iron Works Co.	81
Heiss Hotel	73	Railroad Iron Works Co.	81
Heath Co., J. S.	93	Railroad Iron Works Co.	81
Hedges Walsh Weldner Co.	93	Railroad Iron Works Co.	81
Hendrick Mfg. Co.	106	Railroad Iron Works Co.	81
Hill & Griffith Co.	11-12	Railroad Iron Works Co.	81
Hills Co., George B.	11-12	Railroad Iron Works Co.	81
Hinde & Dauch Paper Co.	30	Railroad Iron Works Co.	81
Hires Turner Glass Co.	30	Railroad Iron Works Co.	81
Hollowell, Gorham & Co.	30	Railroad Iron Works Co.	81
Holt Hardwood Co.	28	Railroad Iron Works Co.	81
Honhorst Co., Jos.	28	Railroad Iron Works Co.	81
Hood Co., B. Mifflin	28	Railroad Iron Works Co.	81
Hoosier Engineering Co.	28	Railroad Iron Works Co.	81
Hornbuckle Contracting Co.	28	Railroad Iron Works Co.	81
Howerton Engineering Co.	28	Railroad Iron Works Co.	81
Huber Mfg. Co.	86	Railroad Iron Works Co.	81
Hudson Pipe & Supply Co.	23	Railroad Iron Works Co.	81
Hunt Co., Robert W.	30	Railroad Iron Works Co.	81
Hyman-Michaels Co.	88	Railroad Iron Works Co.	81
I		S	
Industrial Brownhoist Corp.	73	Saginaw Portland Cement Co.	73
Ingalls Iron Works Co.	73	Saginaw Portland Cement Co.	73
Ingersoll-Rand Co. (A. S. Cameron Steam Pump Works)	73	Saginaw Portland Cement Co.	73
International Derrick & Equip. Co.	106	Saginaw Portland Cement Co.	73
International Filter Co.	8	Saginaw Portland Cement Co.	73
International Harvester Co. of America	8	Saginaw Portland Cement Co.	73
Irving Iron Works Co.	23	Saginaw Portland Cement Co.	73
I. T. E. Circuit Breaker Co.	23	Saginaw Portland Cement Co.	73
J		T	
Jackson Lumber Co.	108	Texas Portland Cement Co.	108
Jacksonville, Fla., City of	97	Texas Portland Cement Co.	108
Jaeger Machine Co.	102	Texas Portland Cement Co.	108
Jefferson Foundry Co.	23	Texas Portland Cement Co.	108
Jennings & Co., Floyd	23	Texas Portland Cement Co.	108

O		Robinson & Orr.....	88	Steele & Sons, J. C.....	71	W	
O'Brien Mchry. Co., The.....	86	Roebeling's Sons Co., John A.....	†	Stirling Engine Co.....	75	Wadleigh & Bailey.....	28
Ohio Power Shovel Co.....	†	Rowan, W. E.....	†	Stirling Wheelbarrow Co.....	90	Wales Wood Preserving Co.....	71
Okonite Co.....	119	Ruberoid Co.....	†	Stewart & Co., Paul.....	87	Walker Electrical Co.....	28
Old Dominion Box Co., Inc.....	†	Rundle-Spence Mfg. Co.....	†	Stillman and Van Siden, Inc.....	29	Wall Mfg. Supply Co., P.....	†
Oliver Iron & Steel Corp.....	73	Russell, Burdall & Ward Bolt & Nut Co.....	†	Street Bros. Machine Works.....	†	Wannamaker & Wells, Inc.....	88
Owen Bucket Co., The.....	89	Rust Engineering Co.....	69-102	Stuebner Iron Works, Inc., G. L.....	82	Warner Service Co.....	29
Owensboro Sewer Pipe Co.....	104	Ryerson & Son, Inc., Jos. T.....	3	Sullivan Machinery Co.....	†	Webb Electric Co.....	30
P		S		T		Y	
Pacific Flush-Tank Co.....	110	Salem Foundry & Machine Works.....	*	Table of Contents.....	33	Yoder Co., The.....	†
Palmer Asbestos & Rubber Corp.....	9	Sanderson & Porter.....	29	Taylor Forge & Pipe Works.....	111	York Safe & Lock Co.....	79
Partee, W. W.....	87	Saugen Derrick Co.....	90	Taylor Sons Co., Chas.....	73	Young & Selden Co.....	*
Patent Scaffolding Co.....	†	Sauerman Bros., Inc.....	92	Tennessee Central Railway.....	98	Youngstown Sheet & Tube Co.....	†
Patterson Co., W. W.....	101	Savannah Creosoting Co.....	71	Tennessee Coal, Iron & Railroad Co.....	14	Z	
Pender, W. R.....	30	Savannah Machine & Fdry. Co.....	*	Tennessee Metal Culvert Co.....	†	Zelnicker in St. Louis.....	86
Pennsylvania Drilling Co.....	30	Saville, Inc., Allen J.....	29	Texas Power & Light Co.....	34		
Perry, Buxton, Doane Co.....	88	Scaife & Sons Co., Wm. B.....	116	Thew Shovel Co., The.....	120		
Phoenix Iron Co., The.....	112	Scofield Engineering Co.....	29	Thompson & Bros., T. C.....	28		
Picard Laboratories, The.....	29	Sebastian Lathe Co.....	†	Timken Roller Bearing Co.....	†		
Pipe Railing Construction Co.....	69	Servicised Premoulded Products, Inc.....	†	Titusville Iron Works Co.....	†		
Pittsburgh-Des Moines Steel Co.....	115	Servicised Products Corp.....	†	Tomlin-Harris Mach. Co.....	96		
Pittsburgh Piping & Equip. Co.....	110	Seneca Wire & Mfg. Co.....	†	Trackson Co.....	†		
Pittsburgh Testing Laboratory.....	30	Shaw Co., B. Russell.....	28	Traylor Engineering & Mfg. Co.....	113		
Poe Piping & Heating Co.....	28	Shore-Line Builders, Inc.....	30	Trucon Steel Co.....	105		
Porter Co., H. K.....	†	Simplicity System Co.....	*	Tucker & Laxton.....	30		
Portland Cement Association.....	†	Sirrine & Co., J. E.....	29	Turner, C. A. P.....	28		
Power Piping Co.....	110	Sloss-Sheffield Steel & Iron Co.....	73	U			
Preacher & Co., Inc., G. Lloyd.....	28	Smallman Construction Co.....	28	U. S. Pipe & Foundry Co.....	†		
Progressive Mfg. Co., The.....	73	Smith, Elroy G.....	28	United Engineers & Constr., Inc.....	†		
Proposal Advertisements.....	83 to 85	Smith Co., S. Morgan.....	19	Universal Crane Co., The.....	†		
Provident Savings Bank & Trust Co.....	81	Smith & Son Co., Oscar T.....	*	Universal Crusher Co.....	†		
Q		Smith & Co., W. M.....	86-88	Universal Power Shovel Co.....	†		
Quincy Compressor Co.....	†	Snare Corp. Frederick.....	30	V			
R		Snead Architectural Iron Works.....	69	Veeder-Root Inc.....	116		
Randle Mchry. Co., The.....	*	Sonneborn Sons, Inc., L.....	†	Viking Pump Co.....	†		
Raymond Bros. Impact Pulv. Co.....	24	Southern Drilling Co.....	30	Virginia Bridge & Iron Co.....	113		
Reading Iron Co.....	†	Southern Engineering Co.....	*	Virginia Engineering Co.....	29		
Republic Steel Corp.....	†	Southern Erectors, Inc.....	28	Virginia Mchry. & Well Co.....	77		
Resale Dept.....	86 to 88	Southern Hotel, The.....	82	Vogt Bros. Mfg. Co.....	77		
Richmond Fdry. & Mfg. Co.....	102	Southern Iron & Equip. Co.....	88	Vogt Machine Co., Henry.....	101		
Ripley Fdry. & Machine Co.....	93	Southern Products Corp.....	106				
Roanoke Iron & Bridge Works.....	101	Southwestern Laboratories.....	30				
Roberts Filter Mfg. Co.....	106	Southwestern Sheet Glass Co.....	*				
Robins & Co., A. K.....	101	Spoon & Lewis.....	29				
		Sprague & Henwood, Inc.....	30				
		Steel and Lebby.....	29				

Advs. marked † not in this issue.
Advs. marked * appear in first issue of month.
Advs. marked * appear every other week.

Classified Opportunities

Proposal Advertisements

Resale Department

{ Pages 85-86

{ Pages 83 to 85

{ Pages 86 to 88

11-6-30

Advs. marked † not in this issue.

Advs. marked ‡ appear in first issue of month.

Advs. marked * appear every other week.

Classified Opportunities } Pages 85-86

Proposal Advertisements } Pages 83 to 85

Resale Department } Pages 86 to 88

11-6-30

STEAM REFINED STOCKS — INDUSTRIAL NAPTHAS



Mineral
Spirits
Kerosene
Distillates
Gas Oil

Cleaners' Napthas
68-70 E.P. 360
64-66 E.P. 375
60-62 E.P. 400
58-60 U. S. Motor
Anti-Knock Gasoline

V. M. & P.
Naptha
Furnace Oil
Fuel Oil
Wax Distillate

WHITE OAK REFINING COMPANY

Refiners and Marketers

Subsidiary of Gulf States Terminal and Transport Co., Inc. ♦ ♦ Export Terminal—New Orleans, La.

14TH FLOOR HUNT BUILDING

TULSA, OKLAHOMA

Cable Addresses: "Expetco," Tulsa ♦ ♦ "Expetgulf," New York—Bentley's Code

BRANCH OFFICES:

60 East 42nd Street
NEW YORK CITY

Builders Exchange
MINNEAPOLIS, MINN.

728 Esperson Building
HOUSTON, TEXAS

208 South La Salle Street
CHICAGO, ILLINOIS

727 West 7th Street
LOS ANGELES, CALIF.

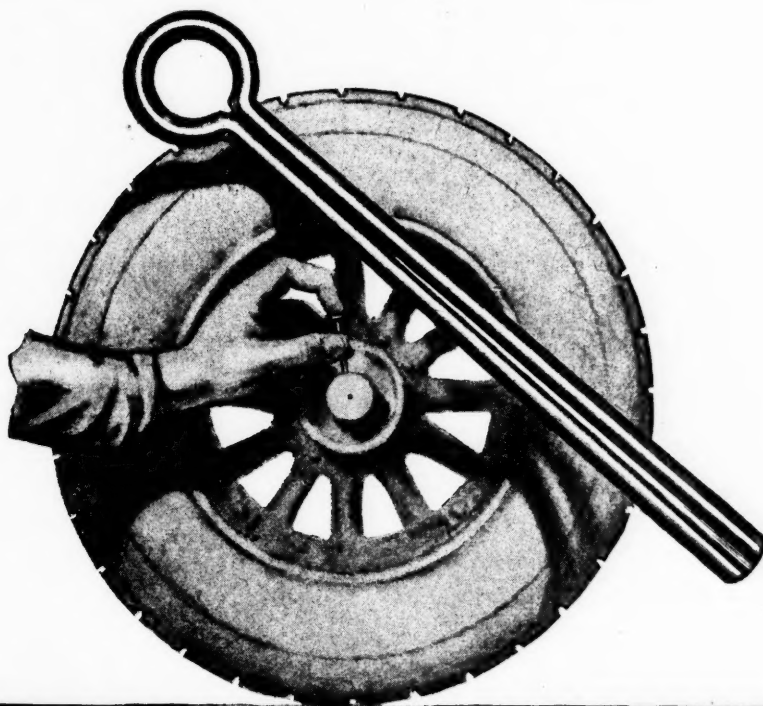
REFINERIES:

ALLEN, OKLAHOMA

OKLAHOMA CITY, OKLAHOMA

LULING, TEXAS

BROWNWOOD, TEXAS



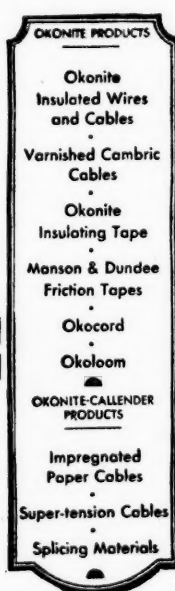
YOU WOULDN'T USE A NAIL FOR THIS JOB INSTEAD OF A COTTER PIN—

YET the nail would serve after a fashion. In some ways it might seem as good as a cotter pin, but what good mechanic would take a chance?

OKONITE insulated wires and cables have over a half-century of dependable performance to recommend them. They have the inbuilt stamina to resist the deteriorating effects of time. They retain their original insulating quality for thirty, forty, fifty years, and more.

Don't take chances with power supply by using electrical wires and cables of unproven quality. In some ways they may seem as good as OKONITE but, for the slight initial saving in cost, does it pay to jeopardize your production schedules?

Specify "OKONITE EXCLUSIVELY" in requisitions and purchase orders. That is the only way to be sure of getting OKONITE quality.



THE OKONITE COMPANY

Founded 1878

THE OKONITE-CALLENDER CABLE COMPANY, INC
Factories: Passaic, N. J. Paterson, N. J.

SALES OFFICES:

NEW YORK	CHICAGO	PITTSBURGH	ST LOUIS	BOSTON	ATLANTA
BIRMINGHAM	SAN FRANCISCO	LOS ANGELES	SEATTLE	DALLAS	
Novelty Electric Co., Philadelphia, Pa.			Canadian Representatives:		
F. D. Lawrence Electric Co., Cincinnati, O.			Engineering Materials, Limited, Montreal		
			Cuban Representatives:		
			Victor G. Mendoza Co., Havana		

ALL THAT ANY
CRANE WILL DO
plus—

SIMULTANEOUS operation
of hoist, swing and travel,
combining the flexibility of the
locomotive crane and the
mobility of the crawler crane.

.. .. 2 Speed Center Drive Crawler mounting. Regulation
of ground pressure to suit specific requirements.

.. .. for hook block work, precision 2 speed hoist control may
be added giving hairline control of the load in lifting or placing.

.. .. the same rugged, superstructure as the famous Lorain
Center Drive Shovel. These machines are convertible
from crane to clamshell, dragline, shovel, or backdigger.



T H E W
LORAIN
CRANES

*You can't be sure you are
getting the most for your
money until you have inves-
tigated Lorain machines.*

THE THEW SHOVEL COMPANY

1514-13 William Oliver Building, Atlanta, Ga. • 1415 Magnolia Building, Dallas, Texas

